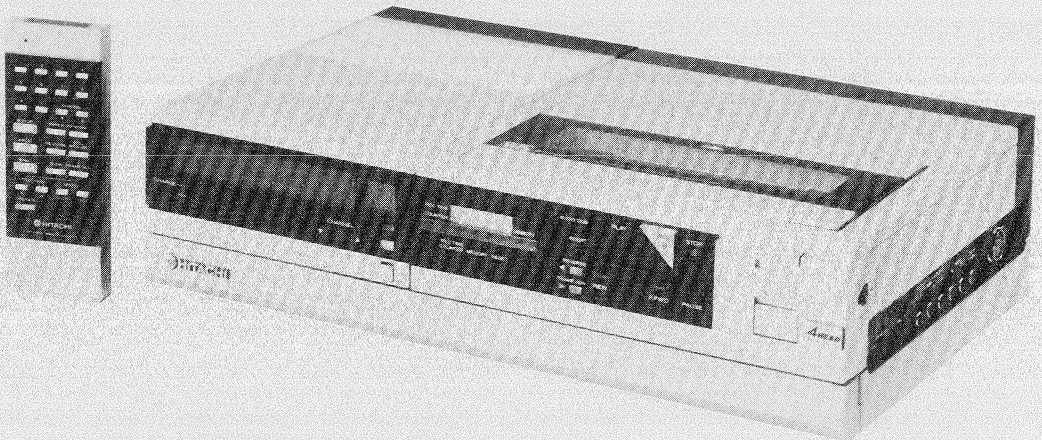
HITACHI
SERVICE MANUAL

TK | No. 2052E

VT-7E, E(BS)
VT-TU7E, E(BS)

REVISED

Technical Data



VHS
THIS VIDEO DECK IS A VHS TYPE VIDEO RECORDER.
FOR PROPER OPERATION, ONLY THE VHS TYPE CASSETTE MUST BE USED.

This service manual is a revised edition of the previously issued manual (VT-7E, E(BS)/VT-TU7E, E(BS), No. 1985E)

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

PORTABLE VIDEO DECK·VIDEO TUNER

November 1983 **TOKAI WORKS**

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SPECIFICATIONS

VIDEO DECK	VT-7E	VT-7E (BS)
Format:	VHS	VHS
Cassette:	VHS Type	VHS Type
Recording:	Rotary Two Head Helical Scan Azimuth Recording	Rotary Two Helical Scan Azimuth Recording
Tape Speed:	23.39 mm/sec. (SP), 11.7 mm/sec. (LP)	23.39 mm/sec. (SP), 11.7 mm/sec. (LP)
Tape Width:	12.7 mm	12.7 mm
Operation Temperature:	0°C to 40°C	0°C to 40°C
Video:	PAL colour (system I, B & G) & CCIR monochrome signal 625 line	PAL colour (system I, B & G) & CCIR monochrome signal 625 line
Recording Time:	480 min. (with Hitachi E-240 cassette) (LP)	480 min. (with Hitachi E-240 cassette) (LP)
RF Output:	UHF channels 37 (30 – 39 adjustable)	UHF channels 37 (30 – 39 adjustable)
Video Input:	0.5 – 2 Vp-p 75 ohm Unbalanced	0.5 – 2 Vp-p 75 ohm Unbalanced
Video Output:	1 Vp-p 75 ohm Unbalanced	1 Vp-p 75 ohm Unbalanced
S/N Ratio (Video):	43 dB (SP)	43 dB (SP)
S/N Ratio (Audio):	43 dB (SP)	43 dB (SP)
Horizontal Resolution:	Colour 240 lines (SP)	Colour 240 line (SP)
Mic Input:	–69 dB 10 kohm	–69 dB 10 kohm
Audio Input:	–8 dB 50 kohm	–8 dB 50 kohm
Audio Output:	–8 dB 600 ohm	–8 dB 600 ohm
Audio Frequency Range:	70 Hz to 12 kHz (SP)	70 Hz to 12 kHz (SP)
Power:	DC 12V	DC 12V
Power Consumption:	4.7W Nominal (recording with DC 12V power supply)	4.7W Nominal (recording with DC 12V power supply)
Cabinet Size:	253 mm (W) x 85 mm (H) x 263 mm (D)	253 mm (W) x 85 mm (H) x 263 mm (D)
Weight:	3.6 kg (with Battery pack VT-BP7A)	3.6 kg (with Battery pack VT-BP7A)
VIDEO TUNER	**VT-TU7E**	**VT-TU7E (BS)**
Video Signal:	PAL colour (system B & G) & CCIR monochrome signal 625 line	PAL colour (system I) & CCIR monochrome signal 625 line
Antenna (aerial) Input:	UHF 75 ohms	UHF 75 ohms
Channels Received:	VHF channel 2 – 12 UHF channels 21 – 69	UHF channels 21 – 69
RF Output:	UHF 75 ohms	UHF 75 ohms
Power Supply:	220V 50 Hz	100 – 110V/115 – 127V/200 – 220V/230 – 250V 50 Hz/60 Hz
Power Consumption:	40W	40W
Dimensions:	430 mm (W) x 118 mm (H) x 290 mm (D)	430 mm (W) x 118 mm (H) x 290 mm (D)
Weight:	3.6 kg	3.6 kg

SAFETY PRECAUTION

The following precautions should be observed when servicing.

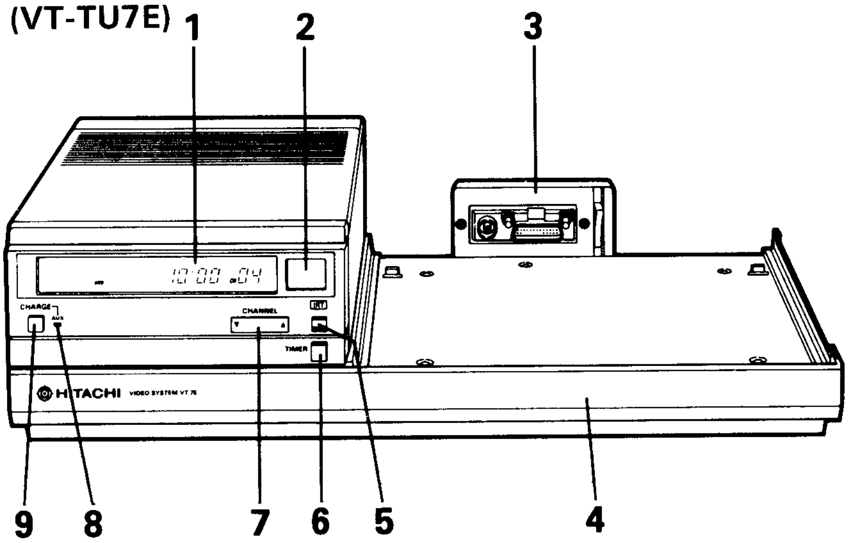
1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with ⚠ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

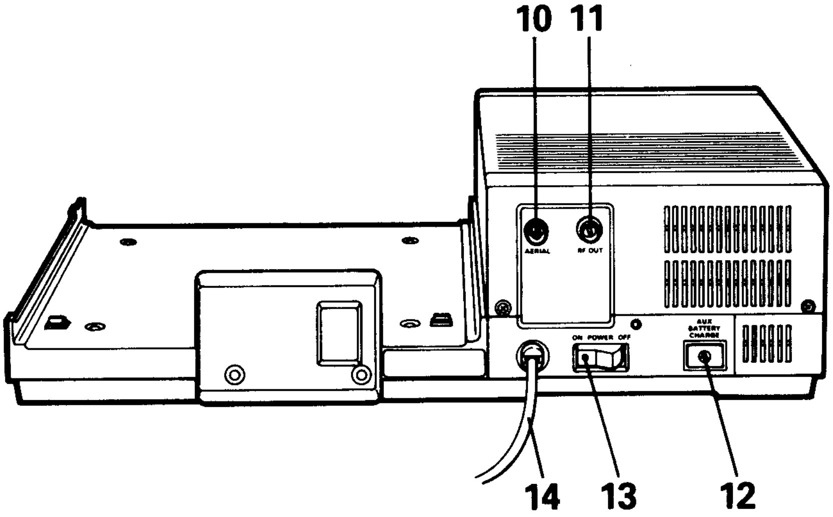
LIST OF DIFFERENCES

Different Section	VT-7E	VT-6800E
FEATURES	**[VT-7E/VT-TU7E]**	**[VT-6800E/VT-TU68E]**
REMOTE CONTROL	WIRELESS (INFRARED) CAMERA REMOTE POSSIBLE	WIRELESS (INFRARED) CAMERA REMOTE POSSIBLE
RECORD PROGRAM	7-PROGRAM/2-WEEK	8-PROGRAM/3-WEEK
BATTERY	Ni-Cd (3 TERMINALS)	Ni-Cd (CABLE WITH PLUG)
BATTERY REMAINING POWER INDICATION	"BATT" LIQUID	POINTER
REC & PLAY	SP & LP	SP
STILL	FIELD STILL (SP)	FRAME STILL (SP)
SLOW	INTERMITTENT DRIVE FIELD SLOW (SP)	INTERMITTENT DRIVE FRAME SLOW (SP)
SERCH	SP & LP (NOISE LOCK)	SP (NOT NOISE LOCK)
FRAME ADVANCE	SP	SP
REVERSE PLAYBACK	PROVIDED (SP)	NOT PROVIDED
REEL DRIVE SYSTEM	REEL MOTOR	CAPSTAN & REEL MOTORS
TAPE COUNTER	4-DIGIT LCD	4-DIGIT MECHANICAL
RECORD TIME INDICATION	4-DIGIT LCD COUNTER	NOT PROVIDED
RECORD LOCK FUNCTION	PROVIDED (STOP ONLY POSSIBLE AFTER REC PAUSE WHEN CAMERA REC)	NOT PROVIDED
STEREO RECORDING AND PLAYBACK	PROVIDED	NOT PROVIDED
INSTANT RECORDING TIMER	PROVIDED	NOT PROVIDED
RECORD CHECK FUNCTION	PROVIDED	PROVIDED
MECHANISM SECTION	**[VT-7E]**	**[VT-6800E]**
VIDEO HEADS	4-HEADS 36 μm/36 μm (SP REC/PLAY) (LP REC/PLAY) (LP SERCH) 75 μm/75 μm (SP TRICK PLAY)	2-HEADS 60 μm/75 μm
MOTORS	4 MOTORS 3-PHASE D-D CYLINDER 3-PHASE D-D CAPSTAN MOTOR DC LOADING MOTOR 3-PHASE D-D REEL MOTOR	4 MOTORS 3-PHASE D-D CYLINDER MOTOR 3-PHASE D-D CAPSTAN MOTOR DC LOADING MOTOR DC REEL MOTOR
	[VT-TU7E]	**[VT-TU68E]**
CHANNEL SELECT	80 PRESET (VOLTAGE SYNTHESIZED TUNER)	12 PRESET
TIMER SWITCH	PROVIDED (PUSH-BUTTON, NON-LOCK)	PROVIDED (PUSH-BUTTON, NON-LOCK)
TIME SET BUTTON	NUMERAL FEED 3 BUTTONS	NUMERAL DIRECT INPUT 12 BUTTONS
IRT BUTTON	PROVIDED	NOT PROVIDED

KEY TO ILLUSTRATIONS

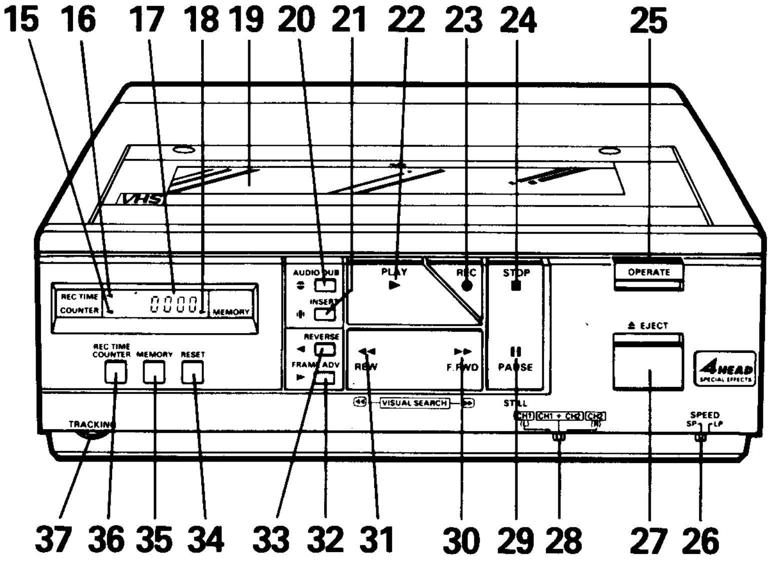
TUNER/TIMER (VT-TU7E)





1. **CLOCK/TIMER DISPLAY**
   Shows the present time of day and start and stop times of programmes.
2. **INFRARED RAY RECEIVING SECTION**
   Receives infrared rays from remote control unit.
3. **VTR CONNECTING TERMINAL**
   Slide the VTR onto the tuner base. Power and RF connections are made automatically.
4. **TIMER CONTROLS DOOR**
   Swing down to reveal timer and tuner controls.
5. **INSTANT RECORDING TIMER BUTTON (IRT)**
   This allows unattended recording.
   The timer will switch VTR off automatically at a preselected time. This is convenient when you go out during recording.
6. **TIMER RECORD SWITCH**
   Press after programming Digital Clock.
7. **CHANNEL UP/DOWN SELECT BUTTON**
   Allows you to scan preprogrammed channels. Refer to page 12 for details.
8. **AUXILIARY BATTERY CHARGING INDICATOR**
   Will light when charging battery connected to the AUX battery charge terminal on back of the tuner.
9. **CHARGE BUTTON AND INDICATOR**
   Press for battery charging. Indicator will light when charging battery built into VTR.
10. **AERIAL INPUT SOCKET**
    Connect external aerial.
11. **RF OUTPUT**
    Connect to TV aerial input.
12. **AUXILIARY BATTERY CHARGE TERMINAL**
    A second rechargeable battery (VT-BP7A) connected with battery connector can be plugged in here for charging.
13. **MAINS POWER SWITCH**
    Mains Power ON-OFF switch.
14. **MAINS LEAD**

TAPE DECK (VT-7E)


15
16
17
18
19
20
21
22
23
24
25
VHS
REC TIME
COUNTER
0000
MEMORY
REC TIME COUNTER
MEMORY
RESET
AUDIO DUB
INSERT
REVERSE
FRAME ADV
PLAY
REC
STOP
REW
F.FWD
PAUSE
STILL
VISUAL SEARCH
OPERATE
EJECT
4HEAD SPECIAL EFFECTS
CH1
CH1 + CH2
CH2
SPEED
SP
LP
TRACKING
37
36
35
34
33
32
31
30
29
28
27
26

15. COUNTER INDICATOR
Comes on when the REC TIME/COUNTER select button is in "COUNTER" position.

16. RECORD TIME INDICATOR
Comes on when the REC TIME/COUNTER select button is in "REC TIME" position.

17. REC TIME/COUNTER DISPLAY
Indicates relative position of programmes on tape or indicates record elapsed time. It may be used to help to locate a programme's starting point or to determine the elapsed recording time.

18. MEMORY INDICATOR
Comes on when the Counter MEMORY button is turned on.

19. CASSETTE HOLDER

20. AUDIO DUB BUTTON
Press AUDIO DUB button and while holding AUDIO DUB, press PLAY button to audio dub.

21. INSERT BUTTON
This button is used when recording the desired scene or title on a previously recorded tape.

22. PLAY BUTTON

23. RECORD BUTTON
Press RECORD button and while holding RECORD, press PLAY button to record.

24. STOP BUTTON
The STOP button must be pressed between "RECORD" and any other operation.

25. OPERATE SWITCH
Turn system power on and off.

26. SPEED SELECT SWITCH
Select standard play (SP) or long play (LP). Only use this switch when recording. Playback speed automatically corresponds with recording speed.

27. EJECT BUTTON
Press to remove cassette. The STOP button must be pressed before "EJECT".

28. AUDIO CHANNEL SELECT SWITCH
Selects the audio source to be output. Refer to page 23 for details.

29. PAUSE/STILL BUTTON
Press to pause during recording.
Press to view still frame during playback of a tape recorded in "SP" mode.
Press again to release.

30. FAST FORWARD/VISUAL SEARCH BUTTON
Press to activate fast forward.
Press this button during playback.
Forward playback picture at high speed can be seen.

31. REWIND/VISUAL SEARCH BUTTON
Press to start rewind.
Press this button during playback.
Reverse playback picture at high speed can be seen.

32. FRAME ADVANCE BUTTON
Press to view tape one frame at a time. Hold down button to advance frames continuously.
Operates only after PAUSE/STILL button has been pressed during playback of a tape recorded in "SP" mode.

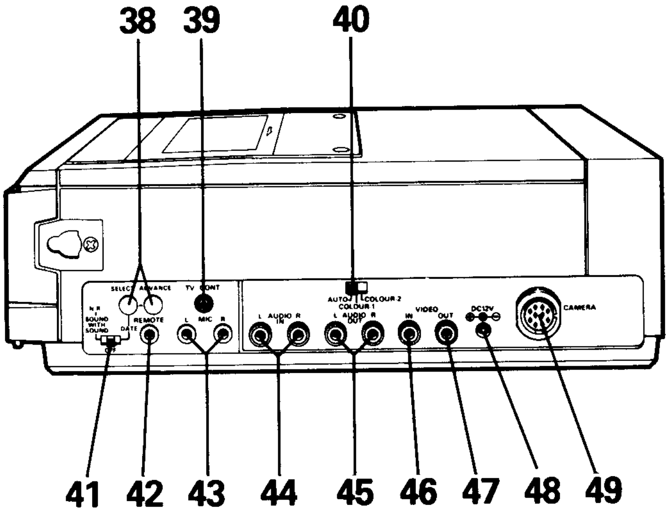
33. REVERSE BUTTON
Press to view picture in reverse direction at normal speed during playback of a tape recorded in "SP" mode.

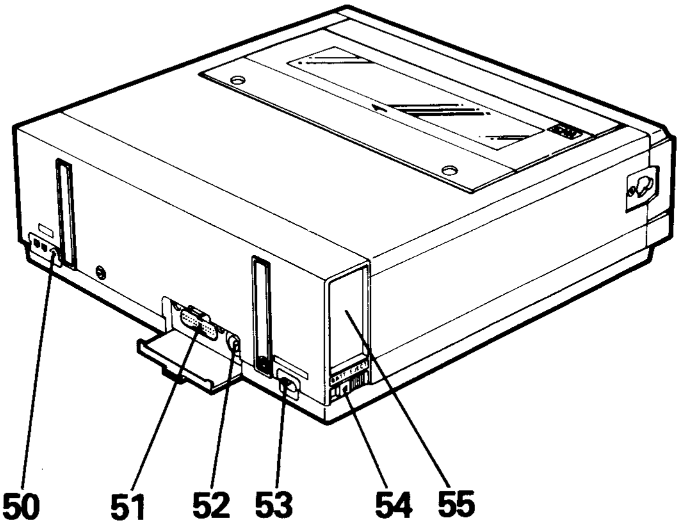
34. RESET BUTTON
To reset counter to "0000".

35. COUNTER MEMORY BUTTON
When this button is ON, tape will stop at approximately "0000" reading.

36. REC TIME/COUNTER SELECT BUTTON
Press to select the record time display or counter display.

37. TRACKING CONTROL KNOB
To minimize noise in playback.





38. DATE SET BUTTONS
Allow you to record the date on the tape.

39. TV CONTROL
For connection with a TV with a DIN jack using an exclusive cable. See your dealer for details.

40. VIDEO MODE SWITCH
AUTO: Circuits are automatically switched to colour or black/white mode. Set to this position when playing or recording PAL signal.
COLOUR 1: When recording PAL signal in the area very far from broadcasting station, recorded picture may lose colour. In that case set to this position in recording and playback.
COLOUR 2: When recording SECAM (system B&G) signal, set to this position in recording and playback.

41. NOISE REDUCTION/SOUND-WITH-SOUND/ DATE SWITCH
Set to the left to reduce tape hiss or noise during playback, or to audio dub to record a new sound on the right soundtrack of tape with left soundtrack left as it is. Set to "OFF" for normal use. This position is used to audio dub when recording new sound with the previous sound completely erased.
Set to the right to record the date.

42. REMOTE CONTROL SOCKET
Plug the remote control unit here.
Note: Be sure to turn off the Operate switch of the VTR when connecting the optional remote control unit.

43. MICROPHONE SOCKETS
For microphones.

44. AUDIO IN
Receive audio signals from external sound equipment or from another VTR.

45. AUDIO OUT
Permits audio connection of your unit to a monitor or another VTR. Or connect the earphone provided to monitor during recording.

46. VIDEO IN
Receives video signal from another VTR.

47. VIDEO OUT
Permits video connection of your unit to a monitor or another VTR.

48. EXTERNAL BATTERY SOCKET
Car battery cord plugs in here to connect VTR to car cigarette lighter socket or to a spare rechargeable battery with the optional battery connector VT-BH7A.

49. CAMERA INPUT SOCKET
Camera is connected here.
Automatically overrides any other input video signal.

50. VIDEO CHANNEL CONTROLS
Set the video channel correctly. See page 9 for details.

51. TUNER CONNECTION TERMINAL
This allows you to connect the VTR to your tuner easily.

52. RF OUT
When the VTR is not connected to the tuner, the coaxial connector cable provided attaches here to connect your VTR and TV or monitor for playback.

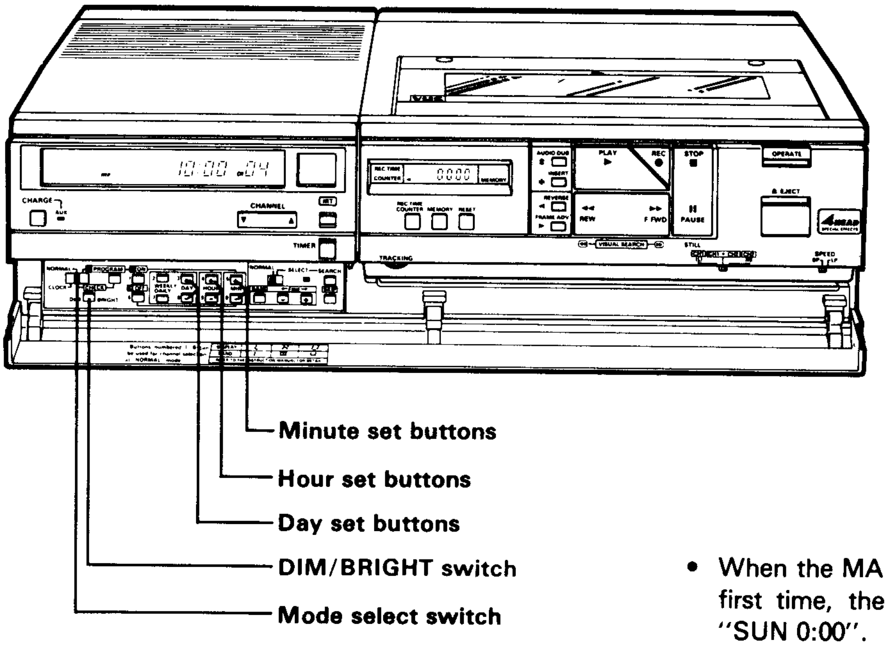
53. VERTICAL JITTER CONTROL (VERT. SYNC. ADJ)
Correct vertical jitter if it occurs during still playback.

54. BATTERY EJECT KNOB
Slide knob in direction of arrow to remove rechargeable battery.

55. BATTERY COMPARTMENT
Door opens when rechargeable battery is inserted.

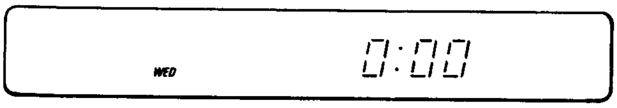
CLOCK TIME SETTING

The timer indication method differs between the VT-TU7E and VT-TU7E (BS). For discrimination between "morning" and "afternoon", the VT-TU7E (BS) has an AM/PM indicator while the VT-TU7E uses a 24-hour clock. Time and programme setting procedures are the same except for the indication shown above. Time and programme setting procedures are shown below using the VT-TU7E as an example.



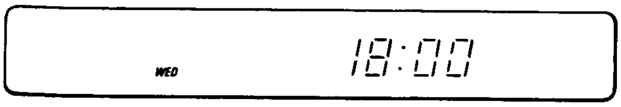
- When the MAINS lead is plugged in for the first time, the digital clock display flashes "SUN 0:00".

1. Set the Mode select switch to "CLOCK".
2. Press the DAY button (forward or reverse) to select the present day of the week.
   The display stops flashing.
   Hold the button down to advance rapidly.



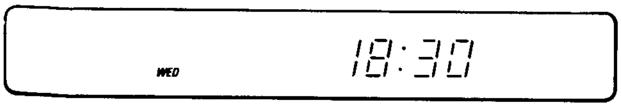
For example, the above diagram shows that Wednesday (WED) has been set.

3. Press the HOUR button (forward or reverse) to set the present hour of day.
   Hold the button down to advance rapidly.



For example, the above diagram shows that "18" hours have been set.

4. Press the MINUTE button (forward or reverse) to set the minute of day.
   Hold the button down to advance rapidly.



For example, the diagram shows that "30" minutes have been set.

Now the clock has been set to the correct time of day.

5. Return the Mode select switch to "NORMAL".
   If the switch is left at "CLOCK", the clock will not advance.

   For zero second setting, set minutes to one minute ahead of present time and move the Mode select switch to "NORMAL" when the exact start of the next minute is reached.

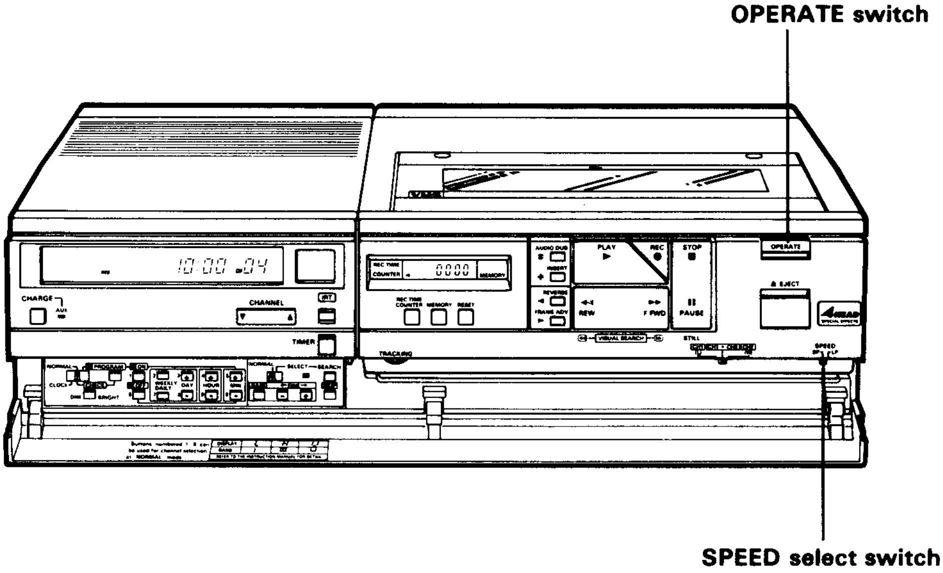
Note: When a power failure occurs or the mains lead is disconnected from the AC outlet for less than approximately 60 minutes, the "PF" indicator flashes to warn you.
Or, if your clock display flashes "SUN 0:00", your home had a power failure for more than 60 minutes. The time should be reset.
The "PF" indicator will disappear when the Mode select switch is returned to "NORMAL" after moving this switch to "CLOCK".

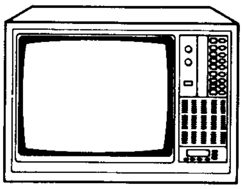
Select the desired intensity level of display by pushing the DIM/BRIGHT switch.

TIMER RECORDING (UNATTENDED RECORDING)

The programmable electronic clock/timer permits the unattended recording of up to 7 preselected programmes. It can be preset up to 14 days in advance to record your favorite programmes. It turns the unit on and off and changes channels automatically.

Preparations for timer recording





Your TV does not have to be on to make a recording because the VTR records TV programmes without the aid of your TV. Its only use is for monitoring.

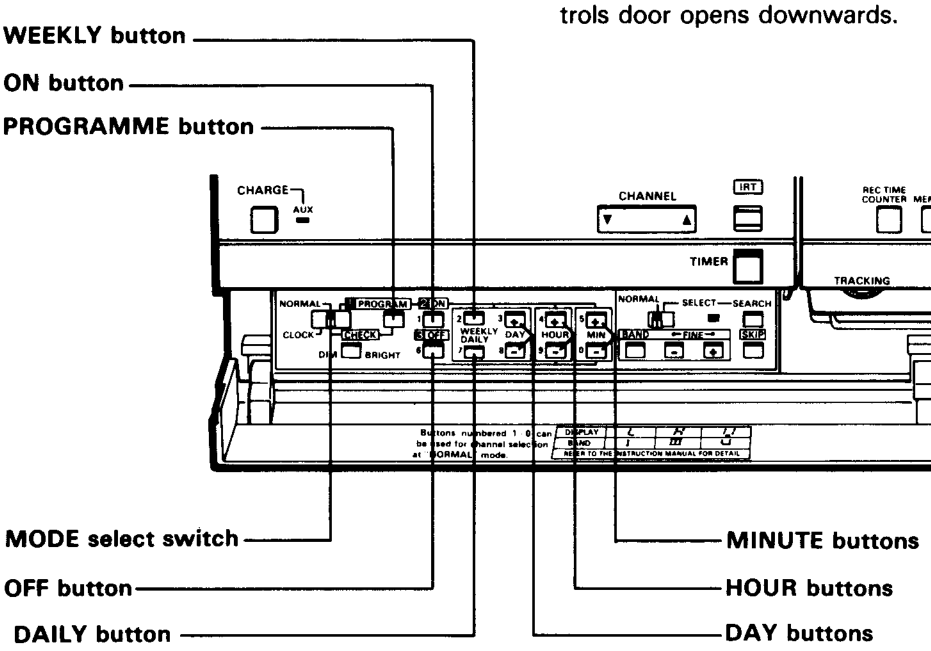
1. Make sure that the clock shows the present time and day correctly.
2. The OPERATE switch may be on or off.
3. Insert a cassette.
   Be sure to check that the record safety tab is not missing. If the record safety tab is missing, recording will not begin.
4. Set the SPEED select switch to "SP" or "LP".

   It is recommended to set this switch to "SP" to obtain the best picture and sound quality.
5. Programme the timer.
   See next page for operation.

Programming the timer for unattended recording

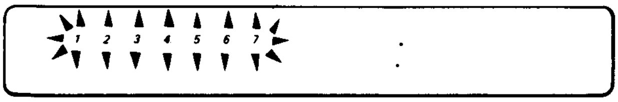
For unattended recording the timer needs to know what **day** to make the recording, the **time to start**, the **time to stop**, and the **channel to be recorded**.

Note: For access to clock/timer controls, Timer controls door opens downwards.



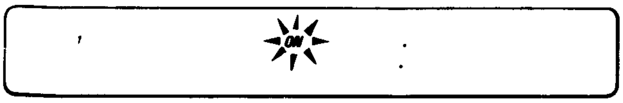
WEEKLY button
ON button
PROGRAMME button
CHARGE
AUX
CHANNEL
IRT
TIMER
REC TIME COUNTER
MEMORY
RESET
TRACKING
NORMAL
PROGRAM
ON
CLOCK
CHECK
OFF
DIM
BRIGHT
WEEKLY
DAILY
DAY
HOUR
MIN
SELECT
SEARCH
BAND
FINE
SKIP
MODE select switch
OFF button
DAILY button
MINUTE buttons
HOUR buttons
DAY buttons

1. Set the MODE select switch to "PROGRAM". Programme indicators (1 through 7) flash to indicate which memory positions have not been programmed. If a memory has been programmed, its indicator will not flash.



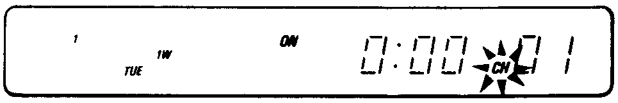
Note: You should determine which memory positions have not been programmed before entering new programming information. New information automatically erases previous programming.

2. Press the PROGRAMME button until desired Programme indicator lights. Programme indicators (1 through 7) light, in sequence, across top of Digital Display. ON indicator flashes to tell you to press the ON button.



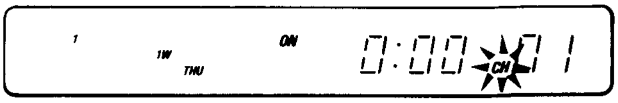
For example, above diagram shows programme "1" has been set.

3. Press the ON button. The present day, 1W, 0:00 and channel number will appear. The letters "CH" will flash until you enter the channel number to be recorded.



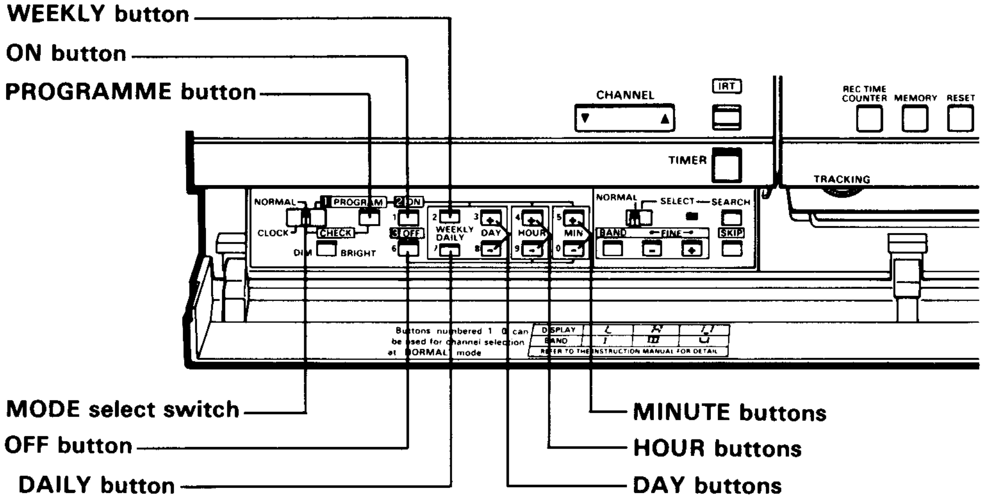
1
1W
TUE
ON
0:00
CH
1

4. Select the day of recording by pressing the DAY (forward or reverse) button until desired Day indicator lights. **Make sure desired Week indicator (1W or 2W) lights.** Continuing forward will advance Timer to Week Two.

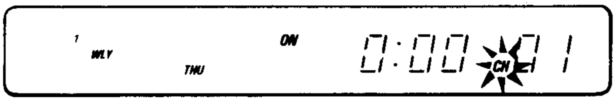


1
1W
THU
ON
0:00
CH
1

For example, above diagram shows recording on Thursday within 1 week from today.

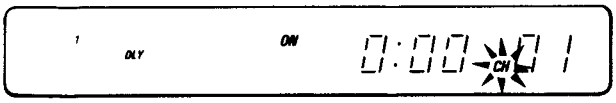

WEEKLY button
ON button
PROGRAMME button
MODE select switch
OFF button
DAILY button
MINUTE buttons
HOUR buttons
DAY buttons
CHANNEL
IRT
TIMER
REC TIME COUNTER
MEMORY
RESET
TRACKING
NORMAL
CLOCK
CHECK
DIM
BRIGHT
PROGRAM
ON
OFF
WEEKLY
DAILY
DAY
HOUR
MIN
SELECT
SEARCH
BAND
FINE
SKIP

To record on a specified day at the same time each week:
First press the WEEKLY button. "1W" will disappear and "WLY" will appear in the display. Then select the day for recording by pressing the DAY (forward or reverse) button.
"1W" and "WLY" will appear alternately by pressing the WEEKLY button.

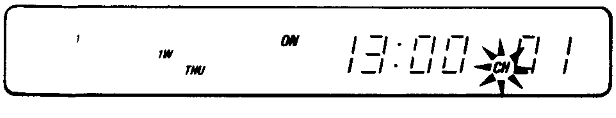

WLY
THU
ON
0:00
CH
1

For example, above diagram shows recording on Thursday every week.

To record at the same time every day of the week:
Press the DAILY button. "1W" and the present day "TUE" will disappear and "DLY" will appear in the display.

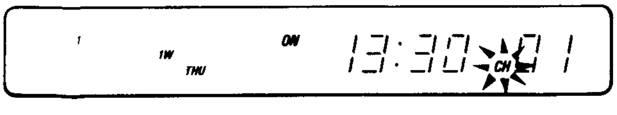

DLY
ON
0:00
CH
1

5. Select the hour for recording to start by pressing the HOUR buttons (forward or reverse). Hold down buttons to advance rapidly.


1W
THU
ON
13:00
CH
1

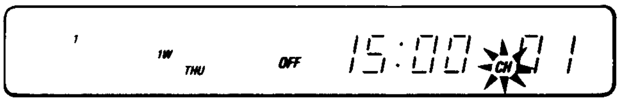
For example, the above diagram shows "13" hours has been set.

6. Select the minute for recording to start by pressing the MINUTE buttons (forward or reverse). Hold down buttons to advance rapidly.


1W
THU
ON
13:30
CH
1

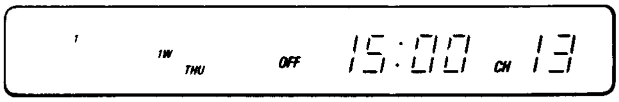
For example, the above diagram shows "30" minutes has been set.

7. Press the OFF button. "OFF" lights. Then set the stop time using the HOUR and MINUTE buttons. (Keep in mind that the maximum recording time without changing cassettes is 8 hours.)


1W
THU
OFF
15:00
CH
1

For example, the above diagram shows the stop time "15:00" has been set.

8. Choose the channel to be recorded by pressing the CHANNEL up/down button. The channel number chosen is indicated, and letters "CH" will stop flashing.
   Note: Any channel to be recorded may be input by steps 4 through 8.


1W
THU
OFF
15:00
CH
13

For example, the above diagram shows channel "13" has been set.

9. To set the next programme, repeat steps 2 through 8.
10. After programming return the MODE select switch to "NORMAL". The display will also return to the present time.
11. Turn on the TIMER button on the front panel of the tuner. The TIMER indicator will come on. If the indicator flashes, a cassette without its safety tab has been inserted. Replace it with a cassette with a tab. If the indicator will not light, the timer has not been programmed.

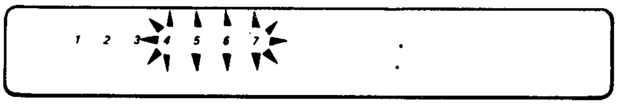
If a power failure occurs and the clock display flashes "SUN 0:00", programming information previously set is cleared. The programming information should be reset.

To correct programme errors:

It is possible to correct the programme information when you find an error before returning the MODE select switch to "NORMAL". When the display indicates the stop time, stop time and channel for recording can be corrected. The start time and day for recording can be corrected when the start time is indicated. The start time and stop time indications are displayed alternately by pressing the ON/OFF buttons.

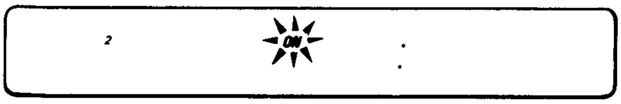
To clear a programme:

1. Set the MODE select switch to "PROGRAM".

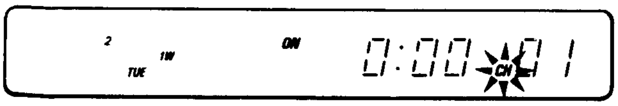


For example, the above diagram shows that programme numbers 1 through 3 have been programmed and programme numbers 4 through 7 have not been programmed.

2. Press the PROGRAMME button until desired programme indicator lights.
   Then "ON" starts flashing.



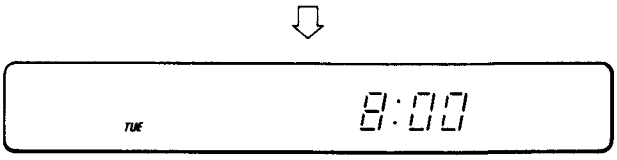
3. Press the ON button.
   Then "0:00" will appear along with the day of the week, 1W, and the channel number with flashing "CH".



4. Then set the MODE select switch to "NORMAL".
   Now the programme is erased.

To check programming

1. Set the MODE select switch to "NORMAL".
2. Press the PROGRAMME button.
   The programme indicator "1" lights. If the programme No. 1 has been already programmed, the "ON" indicator lights and the clock/timer display shows the starting time. Then the "OFF" indicator lights and the display automatically shows the time to stop recording in a few seconds with the channel number to be recorded lighting up. The display then automatically returns to the present time of day.



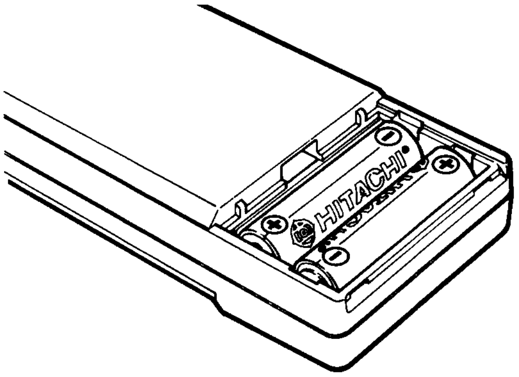
Programming errors

If programmes overlap, the video deck will select the programme with the earliest start time. When that programme is over, the video deck will switch to the next programme. If the start times are the same, the video deck will select the programmes in numerical order.

REMOTE CONTROL

You can operate the VTR from a distance using the Infrared Remote Control unit which performs the same functions as the corresponding buttons on the VTR – except for its SLOW, SLOW TRACKING and SLOW SPEED control buttons.

Power source of infrared remote control unit
The infrared remote control unit is powered by two batteries (size IEC standard R6). The life of the batteries is about a year although it depends on the numbers of times the unit is used. Replace the batteries when operation is not possible or when the distance becomes too small.



Operation of remote control
To use the infrared remote control unit aim it at the receiver on the front panel of the tuner.

Signal transmission window – Transmits signal from the remote control to the VTR. Signal transmission light – glows red when any button except RECORD is pressed.

SLOW button – Press during playback of tapes recorded in the "SP" mode, then use SLOW SPEED control buttons to vary speed.

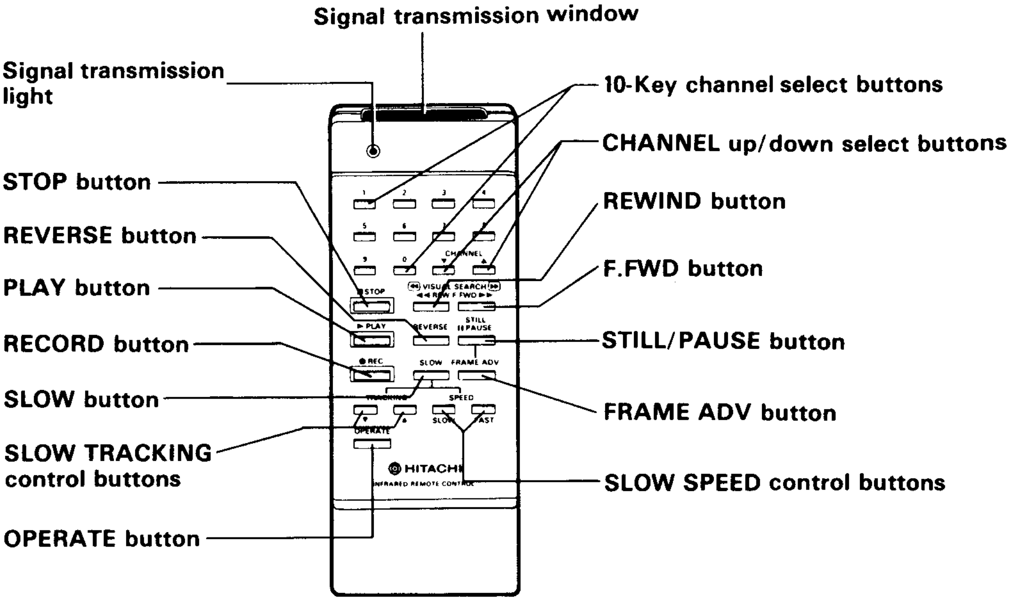
SLOW TRACKING control buttons – Press forward or reverse button to minimize noise bands that may be appear when using the slow, still, frame advance modes.

10-key channel select buttons – Select the channels you wish to view or record. See page 12 for more details.

SLOW SPEED control buttons – Operate only after SLOW button has been pressed.

Other buttons perform the same functions as the corresponding buttons on the VTR.

Note: The infrared rays will bounce off the walls and eventually reach the receiver on the tuner, but for best results transmit rays directly to the receiver.


Signal transmission window
Signal transmission light
STOP button
REVERSE button
PLAY button
RECORD button
SLOW button
SLOW TRACKING control buttons
OPERATE button
10-Key channel select buttons
CHANNEL up/down select buttons
REWIND button
F.FWD button
STILL/PAUSE button
FRAME ADV button
SLOW SPEED control buttons
HITACHI

DISMANTLING

VT-7E (TAPE DECK)

1. Main Mechanical Parts Locations

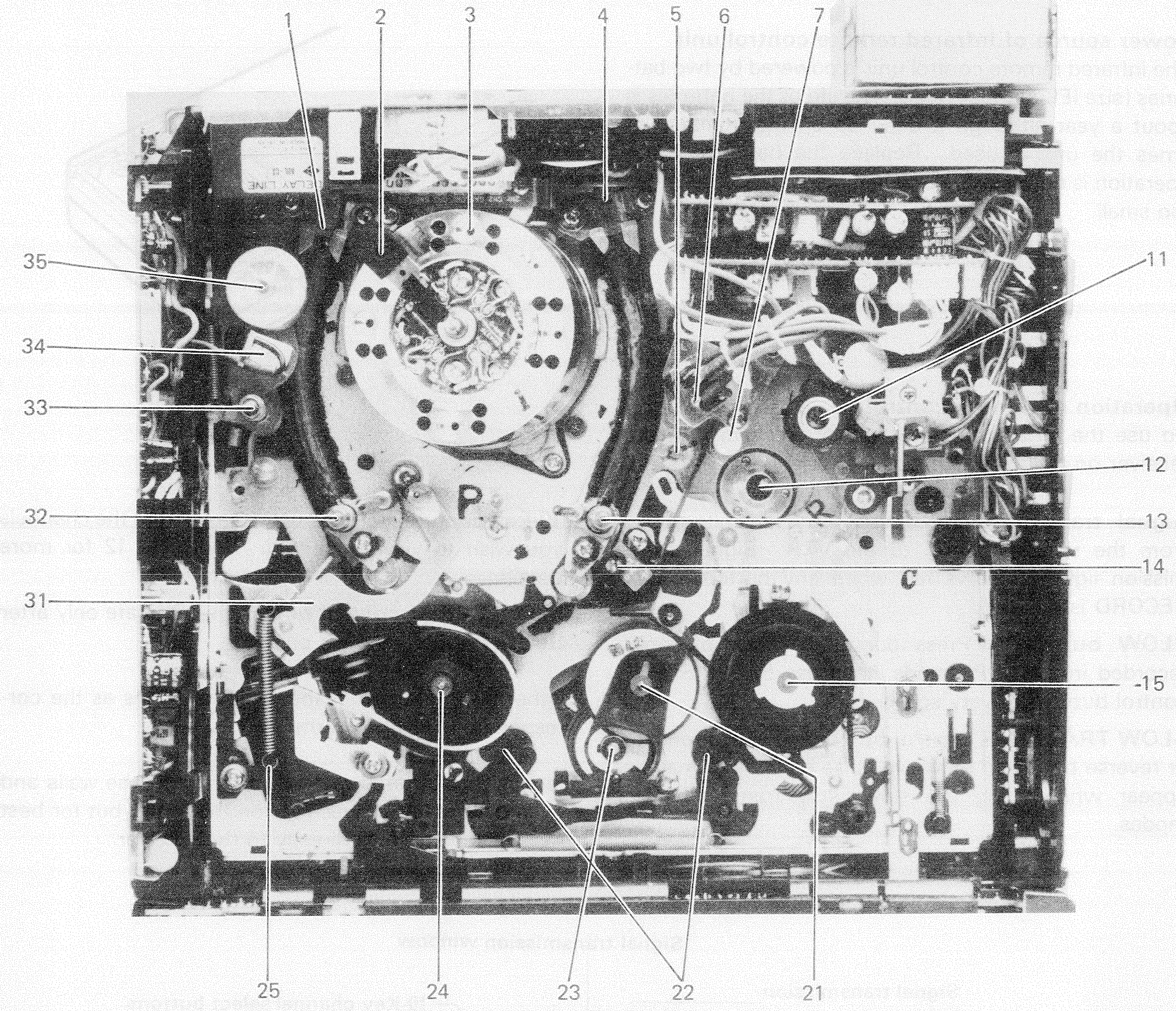


Fig. 1 Mechanism Top View of VT-7E

1. Catcher (supply side)
2. Ground piece of cylinder motor
3. Cylinder with foor Video Heads (Video Head)
4. Catcher (take-up side)
5. X-value adjustment screw
6. Audio/Control head assembly
7. Guide pole (take-up side)

11. Pressure roller
12. Capstan shaft
13. Guide roller (take-up side)
14. End lamp
15. Take-up reel disk

21. Reel drive idler
22. Main brakes
23. Reel motor shaft
24. Supply reel disk
25. Loading motor

31. Tension arm
32. Guide roller (supply side)
33. Guide pole (supply side)
34. Full erase head
35. Impedance roller

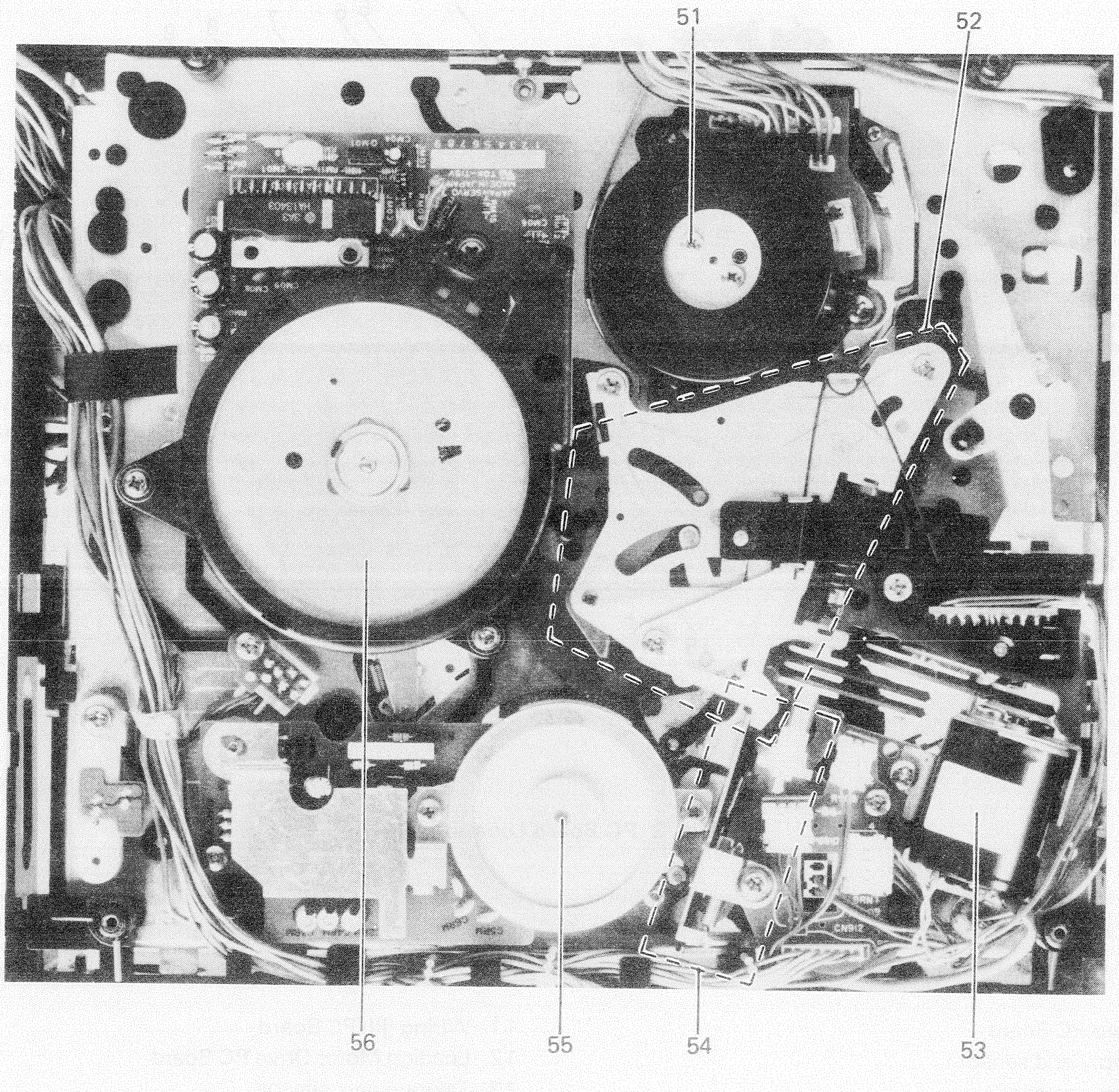


Fig. 2 Mechanism Bottom View of VT-7E

51. Cylinder motor
52. Loading mechanism assembly
53. Loading motor
54. Main brake operation mechanism
55. Reel motor
56. Capstan motor

2. PC Board Locations

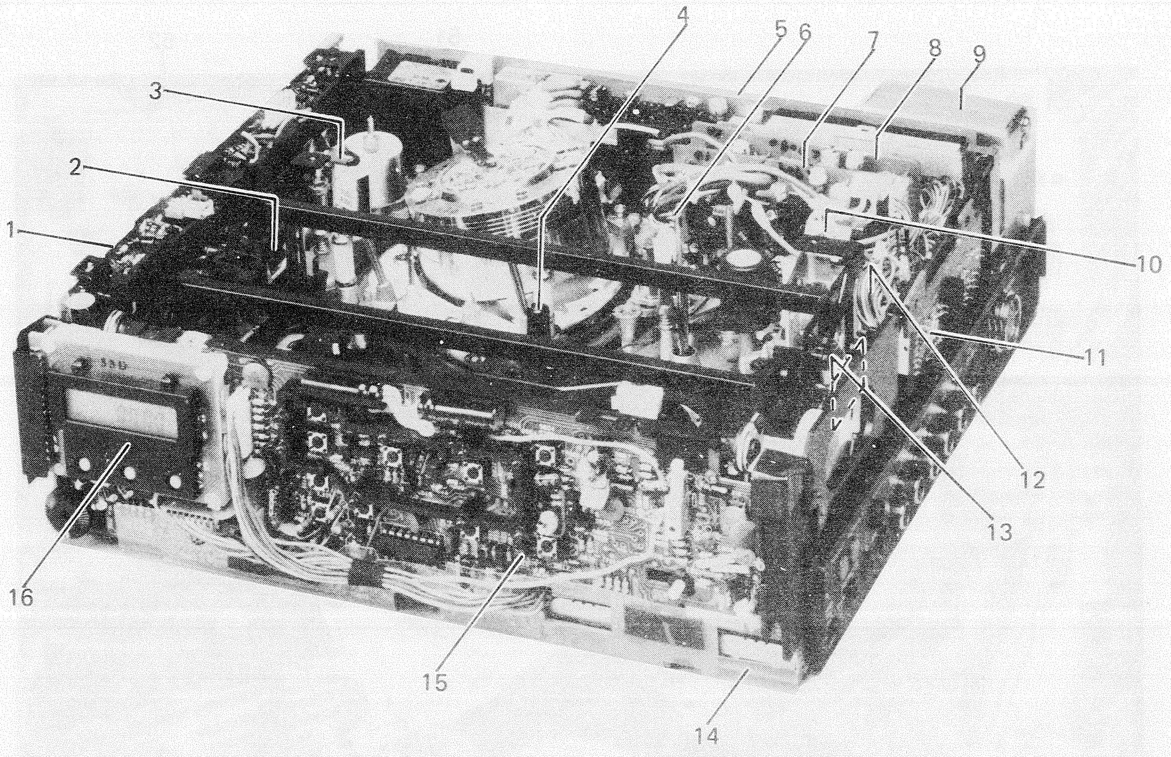


Fig. 3 PC Board Locations (I)

1. Servo PC Board
2. Supply end sensor
3. Full erase head
4. End lamp
5. Y/Chroma PC Board
6. A/C head
7. Audio (Rch) PC Board
8. Audio (Lch) PC Board
9. Switching regulator
10. Dew sensor
11. Wiring (III) PC Board
12. Loading Motor Drive PC Board
13. Take-up end sensor
14. Jack PC Board
15. System Control PC Board
16. Tape counter

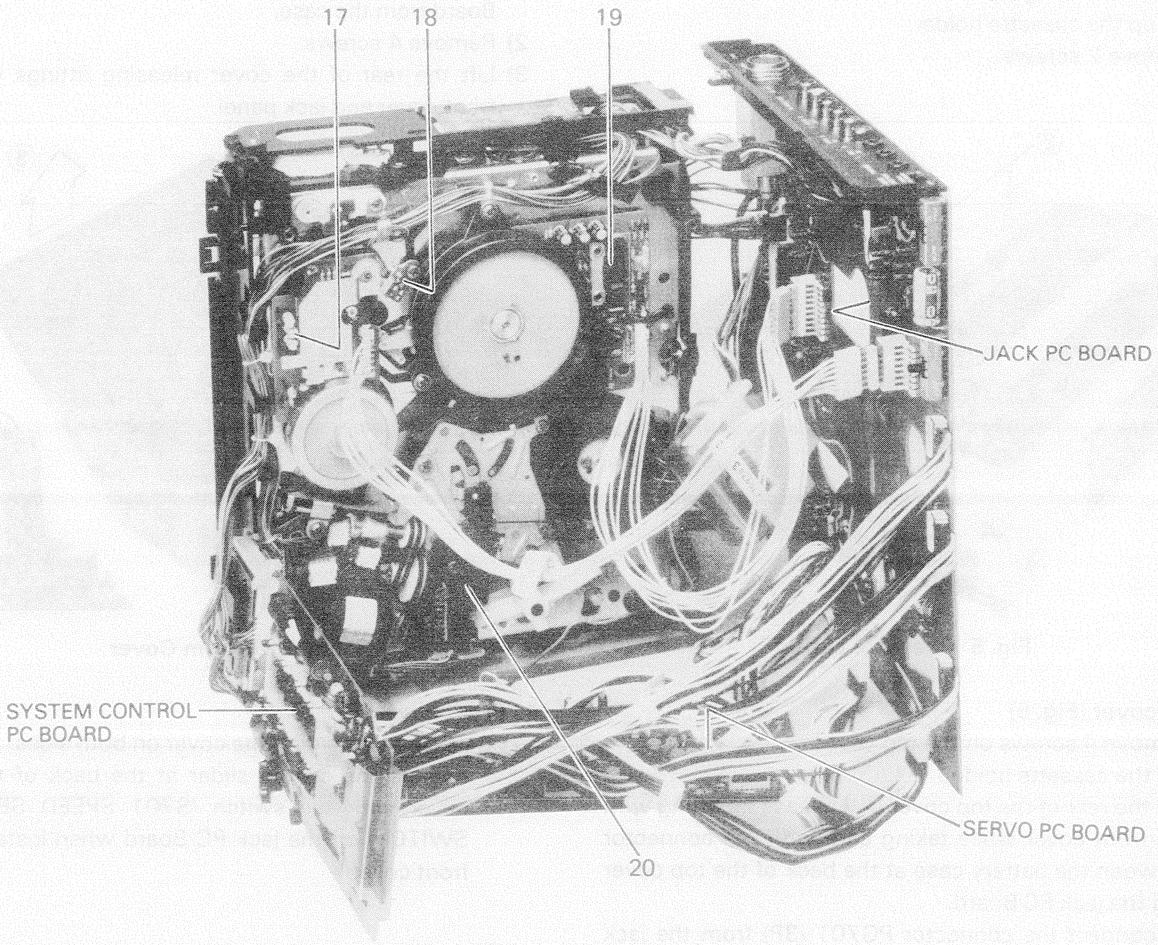

17
18
19
JACK PC BOARD
SYSTEM CONTROL PC BOARD
SERVO PC BOARD
20

Fig. 4 PC Board Locations (II)

17. Reel Motor PC Board
18. Reel Sensor PC Board
19. Capstan Motor PC board
20. Mechanism State Switch

3. Removing the Case

1. Cassette lid (Fig. 5)

1) Lift up the cassette holder.
2) Remove 2 screws.

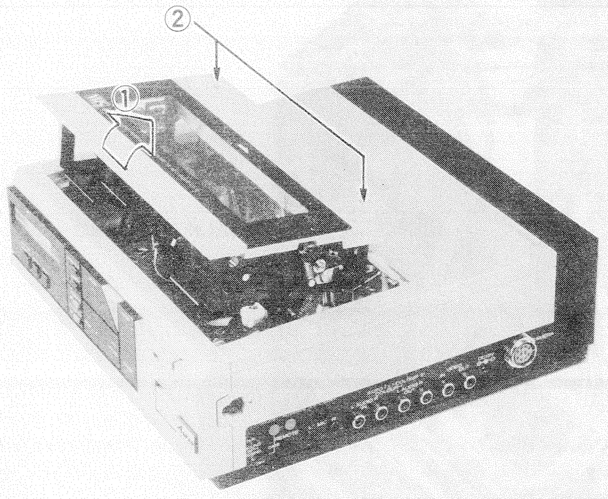


Fig. 5 Cassette Lid

2. Top cover (Fig. 6)

1) Remove 4 screws on the top cover.
2) Lift the cassette holder.
3) Lift the rear of the top cover and release its fitting with the front cover while taking care with the connector between the battery case at the back of the top cover and the jack PC Board.
4) Disconnect the connector PG701 (3P) from the jack PC Board.

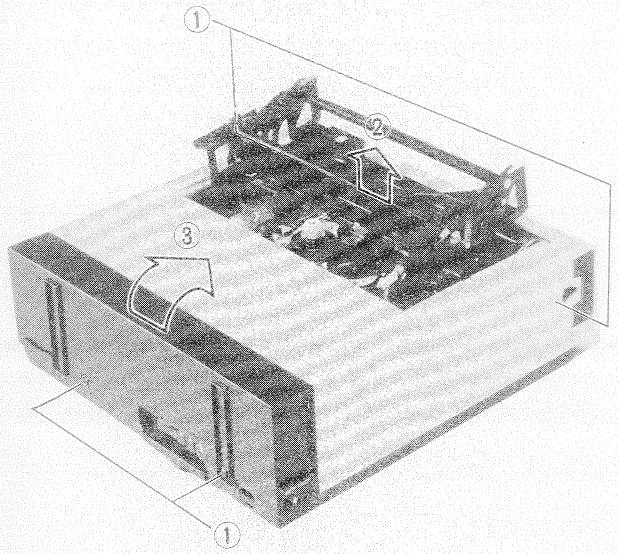


Fig. 6 Top Cover

3. Bottom cover (Fig. 7)

1) Remove the shield cover at the top of the servo PC Board from the case.
2) Remove 4 screws.
3) Lift the rear of the cover releasing fittings with the front cover and jack panel.

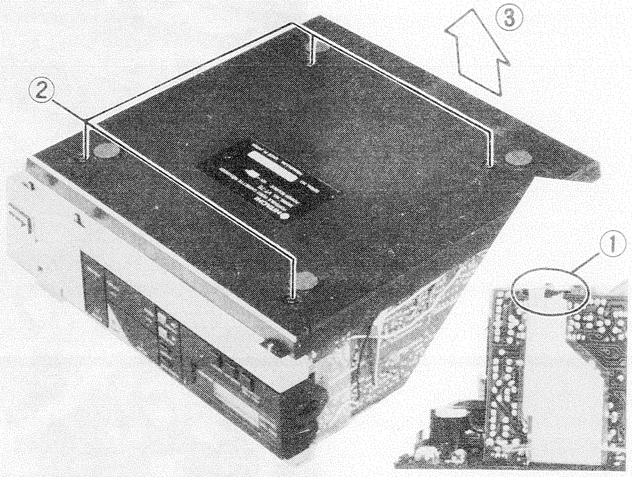


Fig. 7 Bottom Cover

4. Front cover (Fig. 8)

1) Release fittings with the cover on both sides.
   * Engage the switch slider at the back of the front cover with the switch (S701 SPEED SELECTOR SWITCH) on the jack PC Board when installing the front cover.

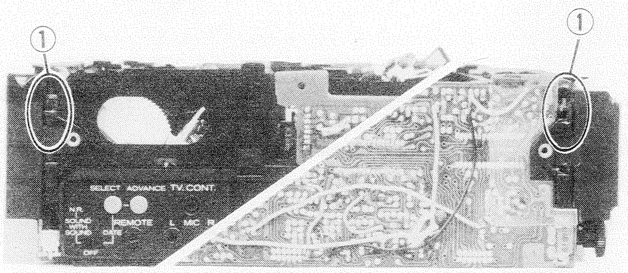


Fig. 8 Front Cover

5. Battery case (Fig. 9)

1) Remove the top cover.
2) Remove 3 tabs inside the top cover which fix the battery case.

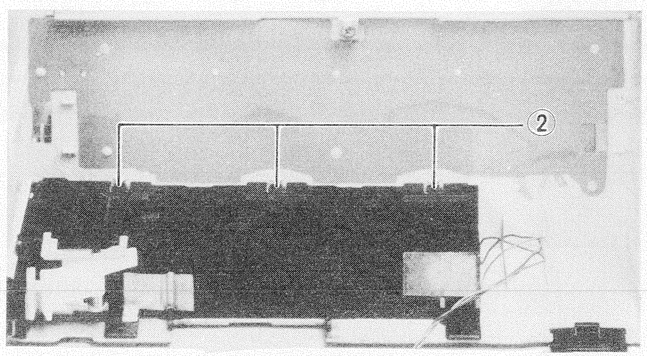


Fig. 9 Battery Case

4. Removing the PC Boards

PC Boards

1. System control PC Board
2. Servo PC Board
3. Y/Chroma PC Board
4. Audio PC Board
5. Wiring (III) PC Board
6. Switching regulator
7. Loading motor drive PC Board
8. Jack PC Board
9. Wiring (II) PC Board

1. System control PC Board (Fig. 10)

1) Release 2 tabs at the top of the PC Board.
2) Pull the bottom of the PC Board toward front and disconnect the 3 relay plugs (PG801, PG802, PG803) from the jack PC Board.
3) Disconnect connectors PG804 (8P) and PG805 (8P).

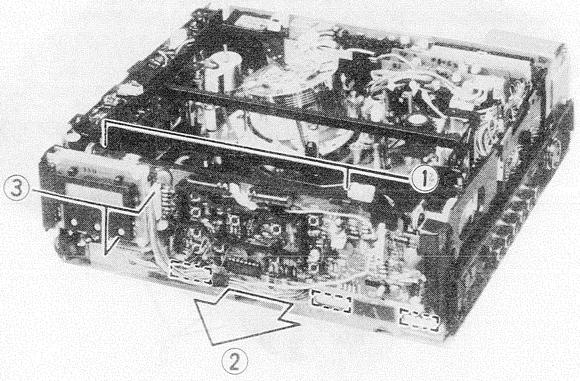


Fig. 10 System Control PC Board

2. Servo PC Board (Fig. 11)

1) Disconnect the connector PG504 (2P).
2) Release 2 fitting sections at the top of the PC Board.
3) Pull bottom of the PC Board toward front and remove the 3 relay plugs (PG502, PG503, PG504) from the jack PC Board.

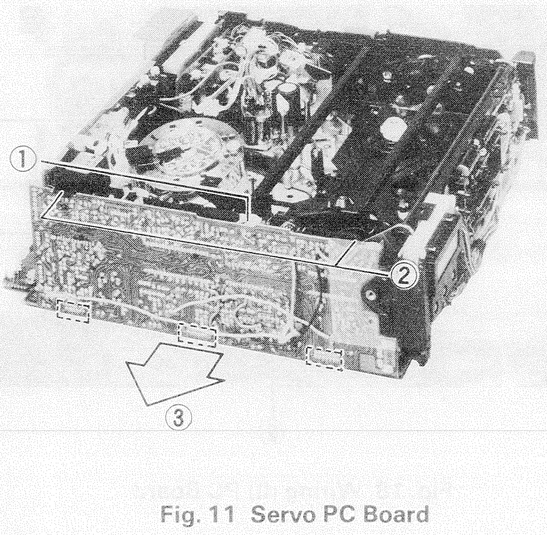


Fig. 11 Servo PC Board

3. Y/Chroma PC Board (Fig. 12)

1) Disconnect the connector CN203 (12P) from the video head PC Board.
2) Release 1 tab at the top of the PC Board.
3) Lift the PC Board and remove 2 relay connectors (CN201, CN202) from the jack PC Board.

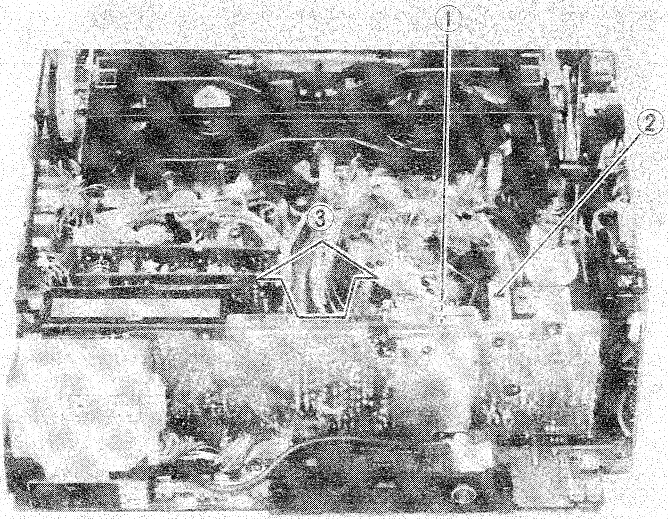


Fig. 12 Y/Chroma PC Board

4. Audio PC Boards (Fig. 13)

1) Disconnect connectors PG403 (3P), PG404 (2P), PG407 (3P), PG407 (4P) from the audio (Rch) PC Board and PG401 (3P), PG402 (2P), PG405 (8P) from the audio (Lch) PC Board.
2) Pull out both PC Boards simultaneously while taking care with the relay cord between the audio PC Board.

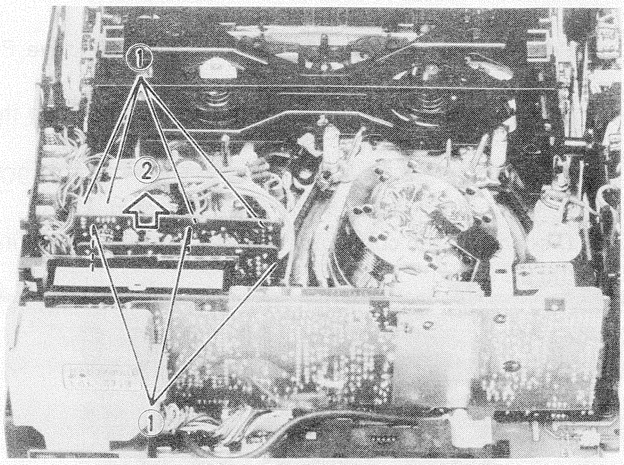


Fig. 13 Audio PC Board

5. Wiring (III) PC Board (Fig. 14)

1) Release 2 tabs at the top of the circuit board.
2) Disconnect connectors PG902 (3P), PG904 (2P), PG905 (2P), PG906 (2P), PG907 (2P) and PG908 (8P) from the PC Board.

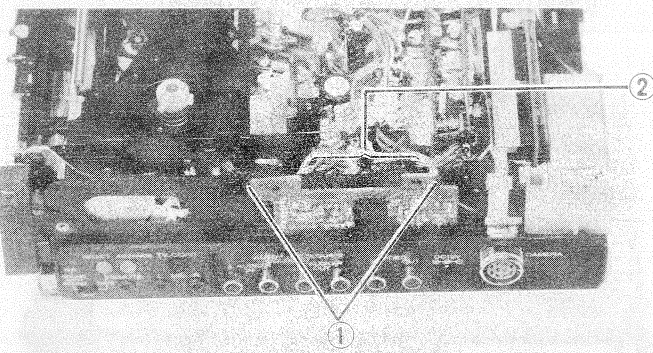


Fig. 14 Wiring III PC Board

6. Switching regulator (Fig. 15)

1) Disconnect the connector PG702 (12P) from the jack PC Board.
2) Release tab and remove the switching regulator by pulling upward.

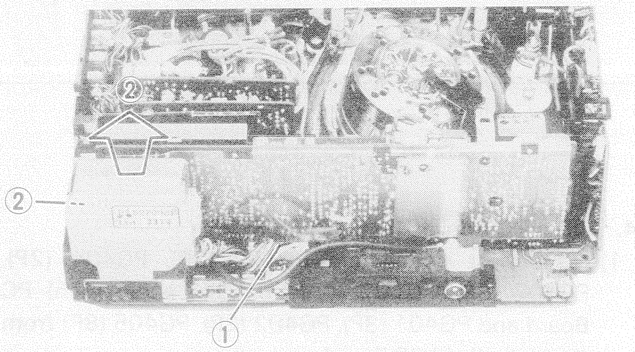


Fig. 15 Switching Regulator

7. Loading motor drive PC Board (Fig. 16)

1) Remove the dew sensor bracket fixing screw and remove the sensor together with the bracket.
2) Remove the Audio (Rch) PC Board.
3) Remove the screw from the loading motor drive PC Board.
   * Tighten the PC Board with the screw attaching the cord clamper to it.
4) Disconnect the connectors PG901 (4P) and PG903 (3P) from the loading motor drive PC board.
5) Disconnect the connector PG902 (3P) from the wiring (III) PC Board.

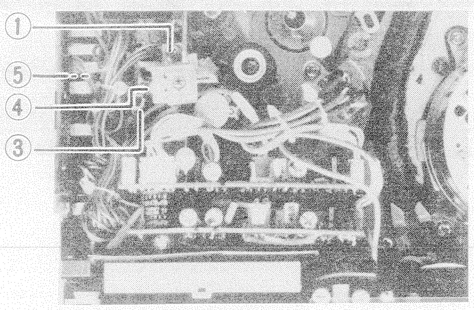


Fig. 16 Loading Motor Drive PC Board

8. Jack PC Board (Fig. 17)

1) Remove the system control PC Board while referring to the "System control PC Board removal".
2) Remove the servo PC Board while referring to the "Servo PC Board removal".
3) Remove the Y/Chroma PC Board while referring to the "Y/Chroma PC Board removal".
4) Disconnect the connector PG702 (12P) from the jack PC Board and pull out the switching regulator together with the bracket.
5) Release 5 fitting sections with the case.
6) Lift the whole PC Board and remove 2 relay connectors (CN706, CN707) between the reel motor and capstan motor PC Boards.

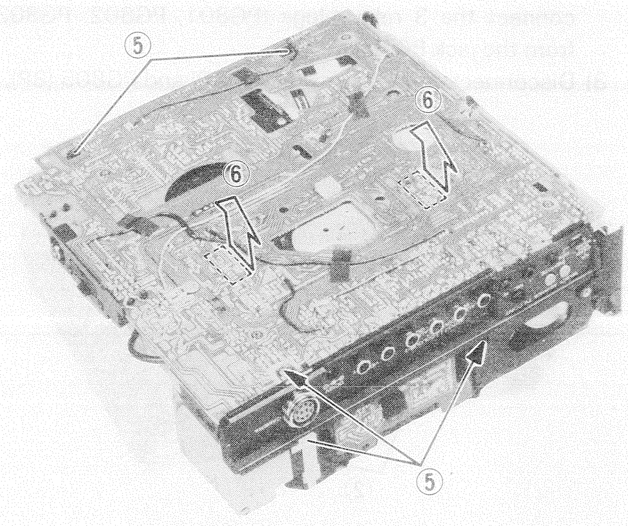


Fig. 17 Jack PC Board

9. Wiring (II) PC Board (Fig. 18)

1) Remove the jack PC Board while referring to the "Jack PC Board removal".
2) Disconnect the connector PG912 (2P) from the safety tab switch.
3) Disconnect connectors PG909 (4P), PG910 (3P) and PG911 (2P).
4) Remove the screw from the wiring (II) PC Board.

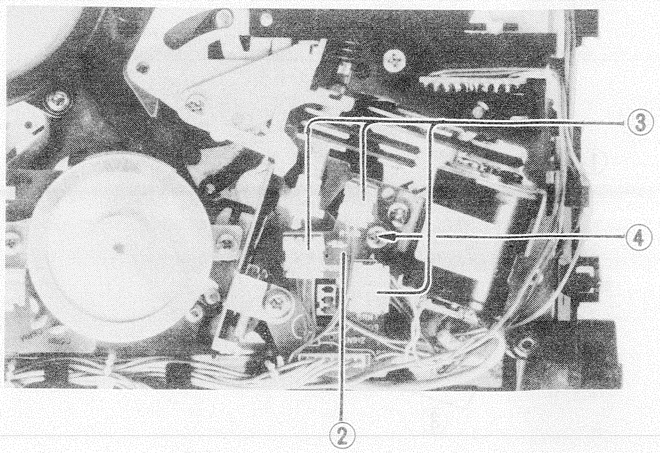


Fig. 18 Wiring (II) PC Board

5. Removing the Main Electric Parts and Main Mechanical Parts

1. Cassette holder

Heads and Sensors

2. Video head (Upper Cylinder)
3. Full erase head
4. Audio/control head
5. Cassette holder switch
6. Mechanism state switch
7. Safety tab switch
8. Supply and take-up end sensors
9. End lamp
10. Dew sensor
11. Reel sensor

Motors

12. Capstan motor
13. Cylinder motor
14. Reel motor
15. Loading motor

Rollers

16. Pressure roller
17. Impedance roller
18. Load pulley
19. Reel drive idler
20. Supply reel disk
21. Take-up reel disk

Pole and brakes

22. Supply and take-up main brakes
23. Supply sub brake
24. Tension band and tension arm
25. Supply guide pole
26. Take-up guide pole
27. Guide rollers
28. Supply and take-up inclined guides
29. Eject slider and eject hold arm
30. Brake slider
31. Supply and take-up loading arms
32. Loading gear assembly

1. Cassette holder (Fig. 19)

1) Lift up the cassette holder and pull out the end sensors on both sides.
2) Remove 2 screws.
3) Lift the rear of the cassette holder and slide forward to release front mounting.
   * Install the cassette holder according to the reverse procedure to the above.

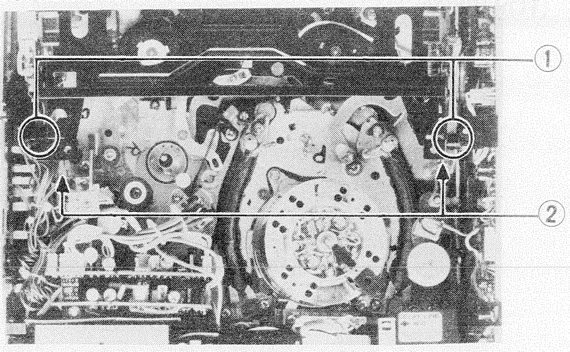


Fig. 19 Cassette Holder

2. Video head (Upper Cylinder) (Fig. 20)

1) Remove the brush fixing screw to remove the ground piece brush.
2) Remove 8 leads of the video head.
3) Remove 2 video head fixing screws to pull out the video head.
   * Be careful during work not to touch the video head tips with your fingers or tools.
   Install the video head according to the reverse procedure to the above.
   Tighten 2 video head fixing screws alternately.
   Perform adjustments shown below after installing the video head.
   ○ Head Switching point Adjustment (CH-1, CH-2 Phase)
   ○ Tracking Preset Adjustment
   ○ Record Y and Chroma Level Adjustments

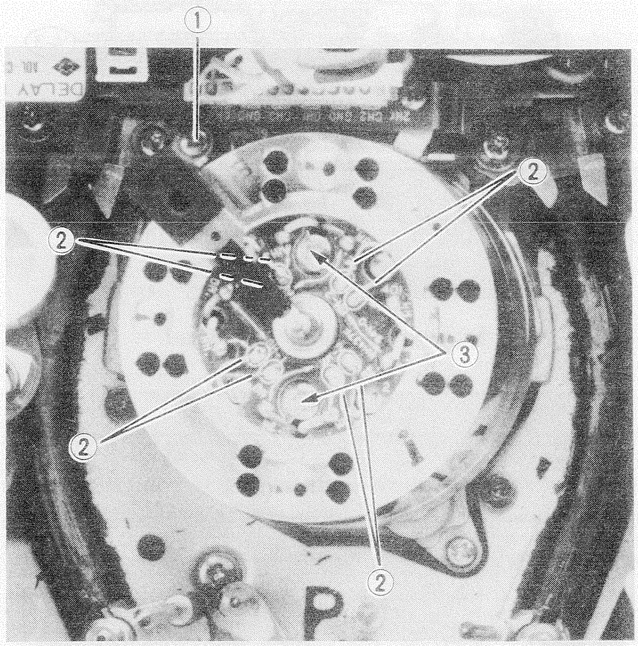


Fig. 20 Video Head

3. Full erase head (FE Head) (Fig. 21)

1) Remove the spring between the FE head base and chassis.
2) Remove the guide pole fixing nut and pull out the guide pole, spring and washer.
3) Pull out the FE head base and then remove the FE head fixing screw at the back of the base.
   * Install the FE head according to the reverse procedure to the above.

4. Audio/control head (A/C Head) (Figs. 21, 22)

1) Remove 2 bead bands.
2) Remove the A/C head base fixing nut and washer to pull out the A/C head assembly.
3) Disconnect connector PG401 (3P) from the audio (Lch) PC Board and PG403 (3P), PG407 (4P) from the audio (Rch) PC Board.

* Install the A/C head according to the reverse procedure to the above. Hook the bottom of the spring under the A/C head base to the stopper of the chassis, and the top, to the tab of the base. Check that the tip of the head base fixing screw is approx. 3 ~ 4 mm above the base top and adjust as follows after installing the A/C head assembly.

○ AC Head Height Adjustment
○ AC Head Azimuth Adjustment
○ AC Head Tilt Adjustment
○ AC Head Position Adjustment

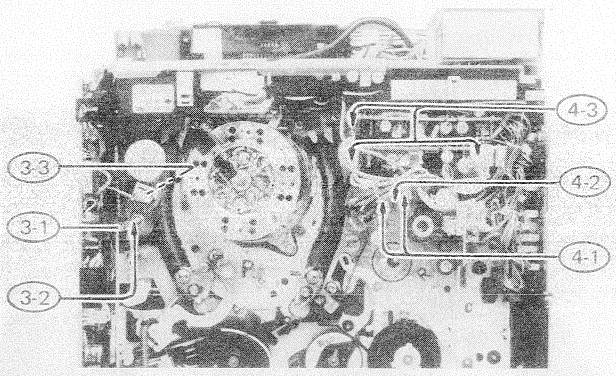


Fig. 21 FE Head A/C Head

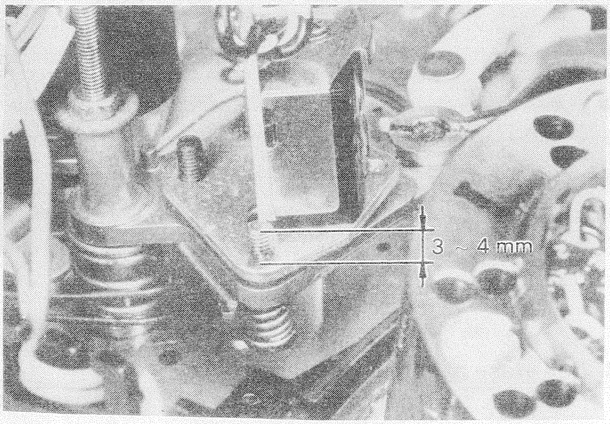


Fig. 22 A/C Head

5. Cassette holder switch (Fig. 23)

1) Remove the jack PC Board while referring to "Jack PC Board removal".
2) Remove the cassette holder switch fixing screw.
3) Disconnect the connector PG911 (2P) from the wiring (II) PC Board.

* Install the cassette holder switch after lifting the cassette holder.
Screw the holder switch while attaching the cord clamper to it.

6. Mechanism state switch (Fig. 23)

1) Remove the jack PC Board while referring to the "Jack PC Board removal".
2) Remove the mechanism state switch fixing screw, lift the screw hole side and release its fitting with the chassis.

* Fix the mechanism state switch with the screw after matching the switch lever with the slider groove when installing the switch.
Adjust the mechanism state switch after installing it.

3) Disconnect the connector PG909 (4P) from the wiring (II) PC Board.

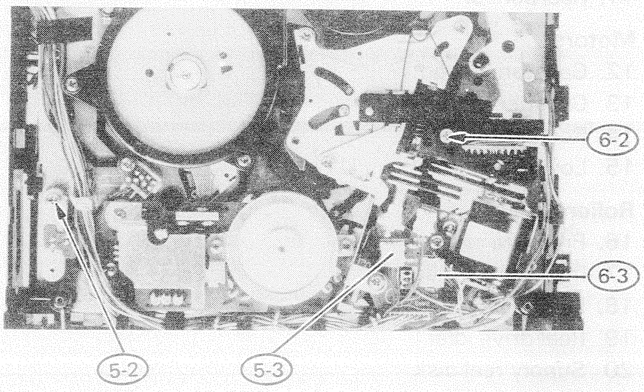
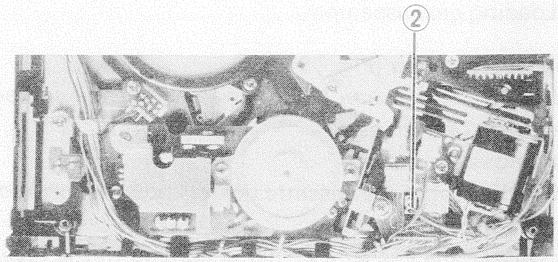


Fig. 23 Switches

7. Safety tab switch (Fig. 24)

1) Remove the jack PC Board while referring to the "Jack PC Board removal".
2) Disconnect the connector PG912 (2P) from the safety tab switch.
3) Remove the cassette holder while referring to the "Cassette holder removal".
4) Remove the safety tab fixing screw.

(VOTTOM VIEW)



(TOP VIEW)

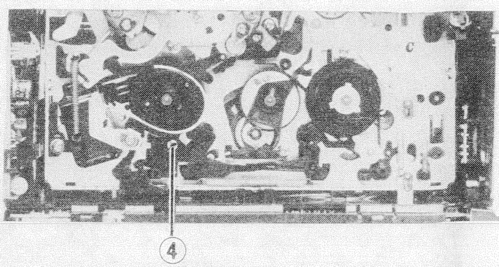
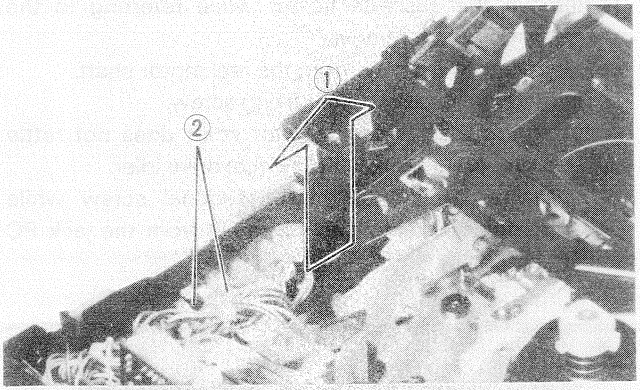


Fig. 24 Safety Tab Switch

8. **Supply and take-up end sensors (Fig. 25)**

1) Lift the cassette holder and pull the sensors upward to remove.
2) Disconnect the connectors PG904 (2P) and PG905 (2P) from the wiring (III) PC Board.

(TAKE-UP SIDE)



(SUPPLY SIDE)

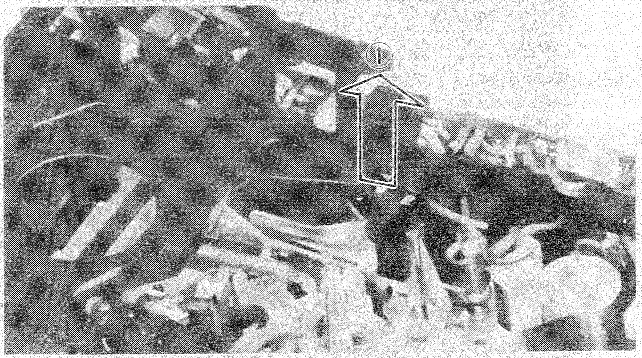


Fig. 25 End Sensors

9. **End lamp (Fig. 26)**

1) Remove the end lamp fixing screw.
2) Disconnect the connector PG907 (2P) from the wiring (III) PC Board.

Note: When replacing, be sure to route wires through the wire guides.

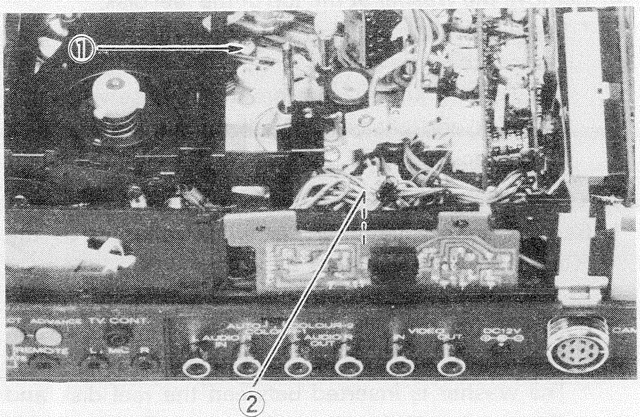


Fig. 26 End Lamp

10. **Dew Sensor (Fig. 27)**

1) Remove the dew sensor fixing screw.
2) Disconnect the connector PG906 (2P) from the wiring (III) PC Board.

Note: Lightly tighten the screw when installing the dew sensor because it is likely to be damaged.

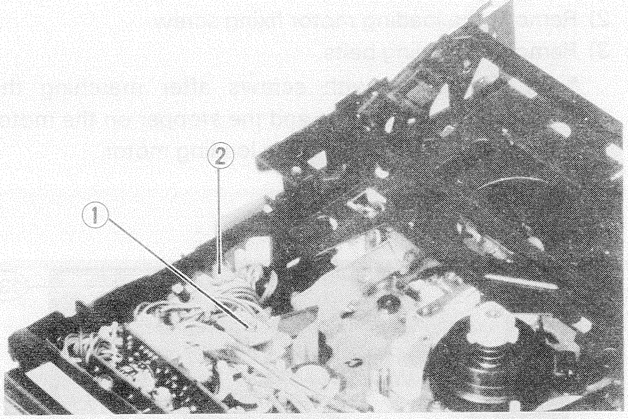


Fig. 27 Dew Sensor

11. **Reel sensor (Fig. 28)**

1) Remove the jack PC Board while referring to "Jack PC Board removal".
2) Remove the reel sensor fixing screw.
3) Disconnect the connector PG910 (3P) from the wiring (II) PC Board.

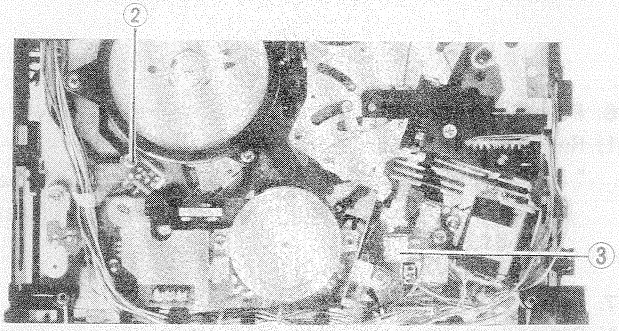


Fig. 28 Reel Sensor

12. **Capstan motor (Fig. 29)**

1) Remove the jack PC Board while referring to "Jack PC Board removal".
2) Remove 3 screws.
   * The insulator is inserted between the capstan motor and the chassis.
   Apply the insulator to the cpastan motor and fix the motor when installing it.

13. **Cylinder motor (Fig. 29)**

1) Remove the jack PC Board while referring to "Jack PC Board removal" and disconnect 2 connectors PG781 (13P), PG782 (2P) from the jack PC Board.
2) Remove 3 screws.

14. Reel motor (Fig. 29)

1) Remove the reel drive idler while referring to "Reel drive idler removal".
2) Remove the jack PC Board while referring to "Jack PC Board removal".
3) Remove 3 screws.

15. Loading motor (Fig. 29)

1) Remove the jack PC Board while referring to the "Jack PC Board removal".
2) Remove the loading motor fixing screw.
3) Remove 2 loading belts.
   * Fix the motor with screws after matching the groove on the chassis and the stopper on the motor bracket when installing the loading motor.

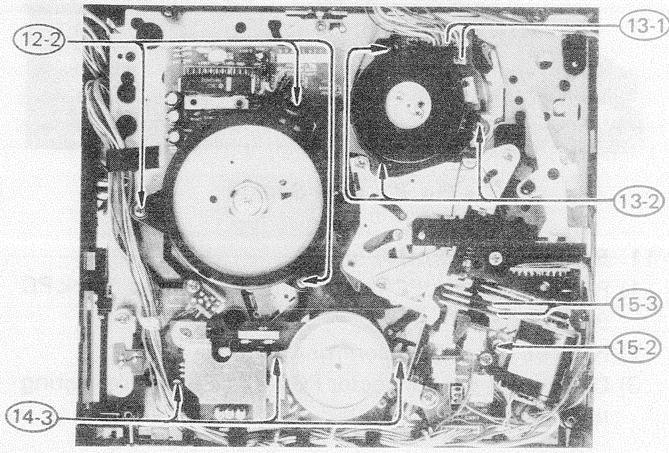


Fig. 29 Motors

16. Pressure roller (Fig. 30)

1) Remove the pressure roller fixing screw.
   * Install the pressure roller so that the side with the inside of the pressure roller made from plastic is set to the top.

17. Impedance roller (Fig. 30)

1) Remove the spring between the FE head base and chassis.
2) Remove the guide pole fixing nut and pull out the guide pole, spring and washer.
3) Pull out the FE head base and remove the FE head fixing screw at the back of the base to remove the FE head.
   * Impedance roller is fixed to the FE head base together with the roller shaft and roller.
   Install the impedance roller according to the reverse procedure to the above.

18. Load pulley (Fig. 30)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the belt between the load pulley and the reel disk.
3) Remove the washer at the top of the load pulley.

19. Reel drive idler (Fig. 30)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the Fix screw from the reel motor shaft.
3) Remove the reel drive idler fixing screw.
   * Confirm that the reel motor shaft does not rattle up/down after installing the reel drive idler.
   If it rattles, tighten the hexagonal screw while pressing the reel motor flywheel from the jack PC Board side.

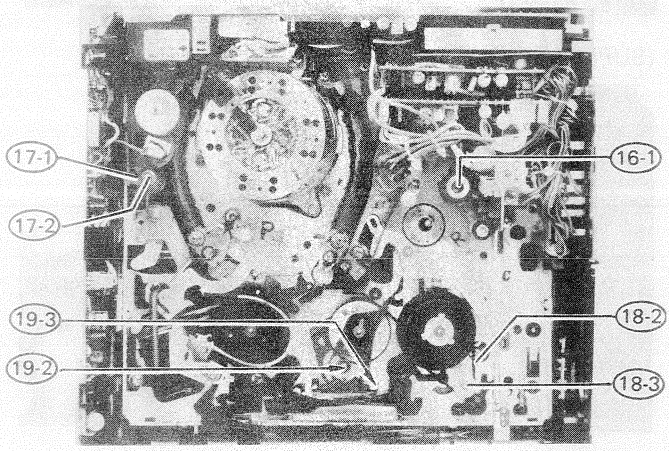


Fig. 30 Rollers

20. Supply reel disk (Fig. 31)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the tension arm and tension band while referring to the "Tesion band and Tension arm removal".
3) Remove the supply sub-brake while referring to the "Supply sub-brake removal".
4) Remove the washer at the top of the reel disk.
   * Install the supply reel disk according to the reverse procedure to the above.
   The bearing and washer are inserted between the reel disk and chassis. Install the supply reel disk after checking these.

21. Take-up reel disk (Fig. 31)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the belt between the reel disk and the load pulley.
3) Remove the washer at the top of the reel disk.
   * The washer is inserted between the reel disk and chassis. Install the take-up reel disk after checking it.

22. Supply and take-up main brakes (Fig. 31)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the spring between the supply and take-up main brakes.
3) Release fitting with the chassis.

23. Supply sub brake (Fig. 31)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the spring between the sub-chassis and brake.
3) Release fitting of the brake rotary shaft.

24. Tension band and tension arm (Fig. 31)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the spring between the tension arm and spring holder.
3) Remove the tension band fixing screw.
4) Release fitting of the tension arm and pull out the tension arm and tension band.

* Install the tension band and tension arm according to the reverse procedure to the above.
Perform adjustments below after installing them.
○ Tension Arm Position Adjustment
○ Back Tension Adjustment

25. Supply guide pole (Fig. 31)

1) Remove the guide pole fixing nut.

* Adjust the height of the guide pole after installing it.

26. Take-up guide pole (Fig. 31)

1) Remove the guide pole fixing nut.

* Adjust the height of the guide pole after installing it.

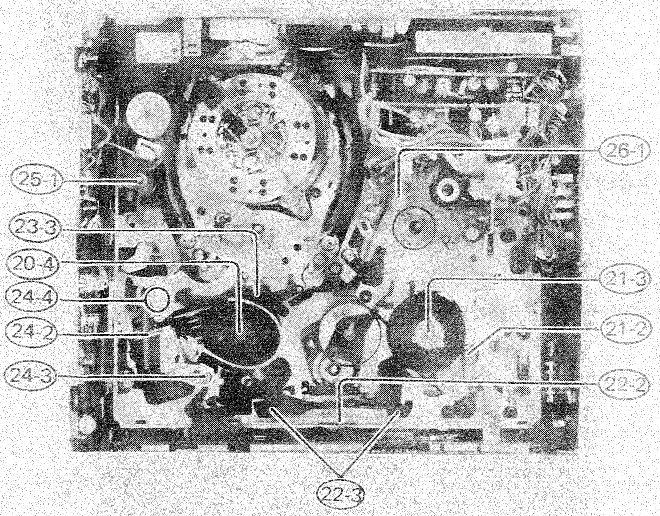


Fig. 31

27. Guide roller (Fig. 32)

1) Lift up the cassette holder.
2) Loosen the guide roller fixing screws.
3) Turn the guide rollers to remove.

* Adjust the guide rollers after installation.

28. Supply and take-up inclined guides (Fig. 32)

1) Lift up the cassette holder.
2) Remove the guide roller fixing screws.
3) Remove the inclined guide fixing screws.

* Adjust the inclined guides after installing them.

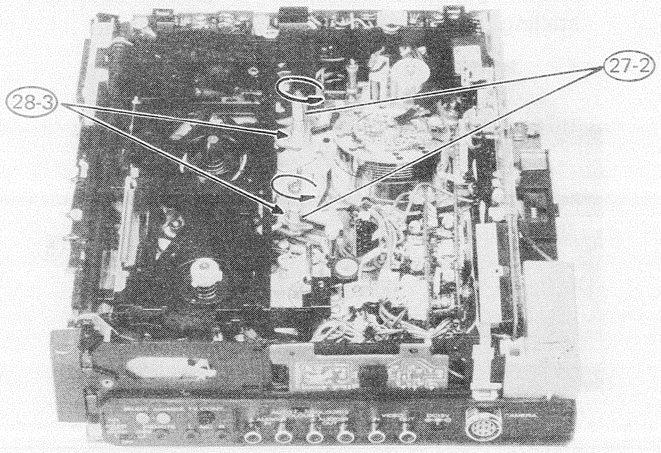


Fig. 32 Guide Roller, Supply and Take-up Inclined Guides

29. Eject slider and eject hold arm (Fig. 33)

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove 2 springs between the slider and hold arm, and slider and chassis.
3) Remove 2 washers which fix the eject slider.

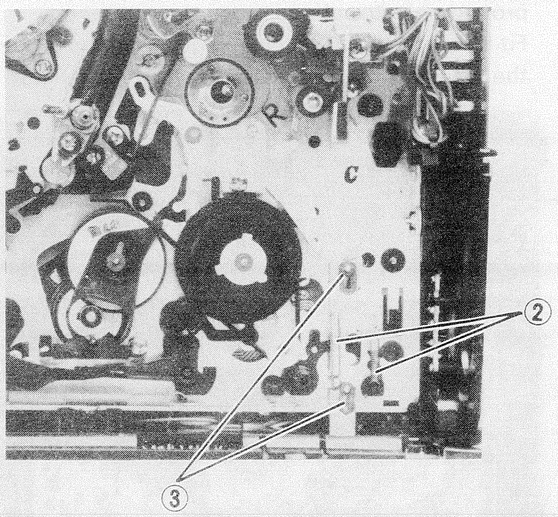


Fig. 33 Eject Slider, Eject hold Arm

30. **Brake slider (Fig. 34)**

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the reel drive idler while referring to the "Reel drive idler removal".
3) Remove the jack PC Board while referring to the "Jack PC Board removal".
4) Remove the reel motor while referring to the "Reel motor removal".
5) Remove the brake slider fixing screw.
   * Insert the brake/pressure roller operation arm pin into the groove in the slider driving section when installing the brake slider.

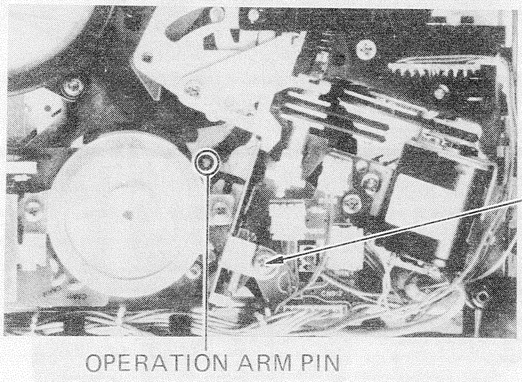


Fig. 34 Brake Slider

31. **Supply and take-up loading arms (Fig. 35)**

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the tension band and tension arm while referring to the "Tension band andTension arm removal".
3) Remove the supply sub brake while referring to the "Supply sub brake removal".
4) Remove 4 sub-chassis fixing screws and then remove the sub-chassis, guide pole and inclined guide together with their bases.
   * Install the loading arm according to the reverse procedure to the above.
   Fit the stopper of the loading gear and the groove in the loading arm when installing the loading arm.

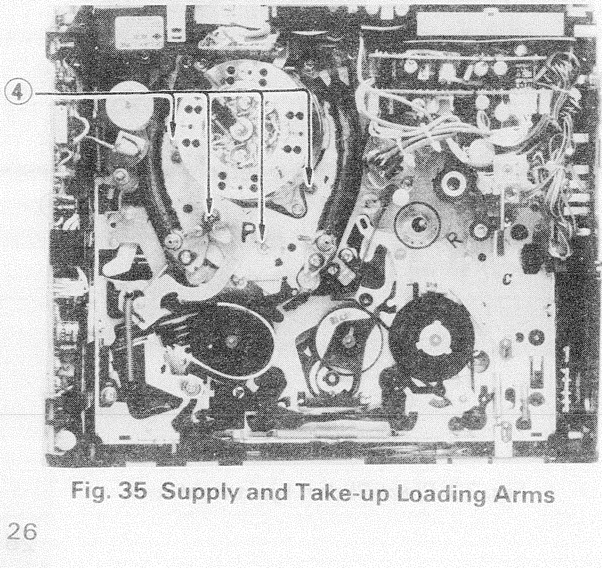


Fig. 35 Supply and Take-up Loading Arms

32. **Loading gear assembly (Fig. 36)**

1) Remove the cassette holder while referring to the "Cassette holder removal".
2) Remove the reel drive idler while referring to the "Reel drive idler removal".
3) Remove 2 screws on the sub chassis.
4) Remove the jack PC Board while referring to the "Jack PC Board removal".
5) Remove the capstan motor while referring to the "Capstan motor removal".
6) Remove the reel motor while referring to the "Reel motor removal".
7) Remove the brake slider while referring to the "Brake slider removal".
8) Remove the mechanism state switch while referring to the "Mechanism state switch removal".
9) Remove the spring from the loading gear assembly.
10) Release the fitting with the loading gear assembly to remove the switch slider.
11) Release the fitting between the tension release arm and the chassis to remove the tension release arm.
12) Remove 2 loading belts.
13) Remove 3 loading gear assembly fixing screws.
   * Install the loading gear assembly in the reverse procedure while paying attention to the following.
     ○ Insert the take-up brake drive arm pin into the hole in the take-up brake operation arm.
     ○ Insert the pressure roller drive arm pin into the hole in the pressure roller operation arm.

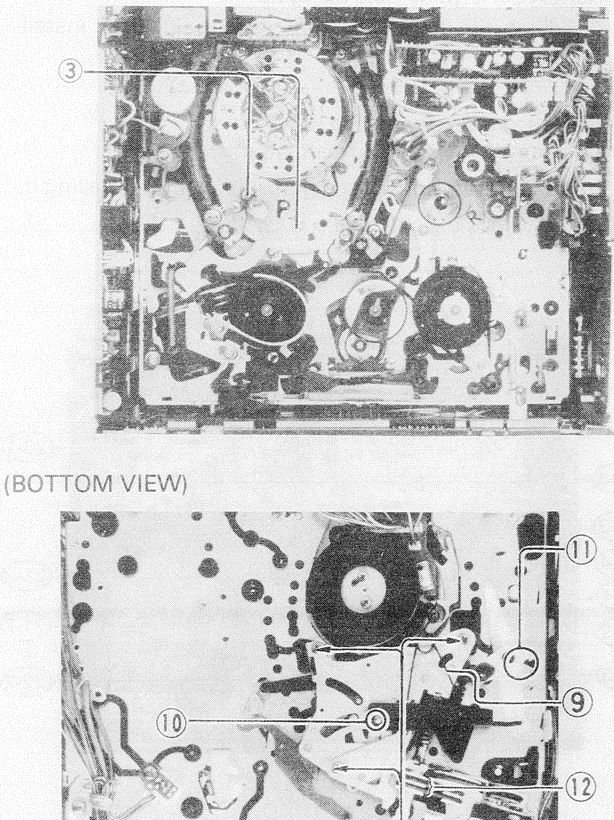


Fig. 36 Loading Gear

VT-TU7E (TUNER/TIMER)

1. PC Board Loactions

1. Timer/Input key PC Board
2. V·S Tuning PC Board
3. S_1 PC Board
4. Tuner/IF PC Board
5. IF/Pack
6. Regulator PC Board
7. T_1 PC Board
8. T_2 PC Board
9. Wiring PC Board
10. Tuner connector

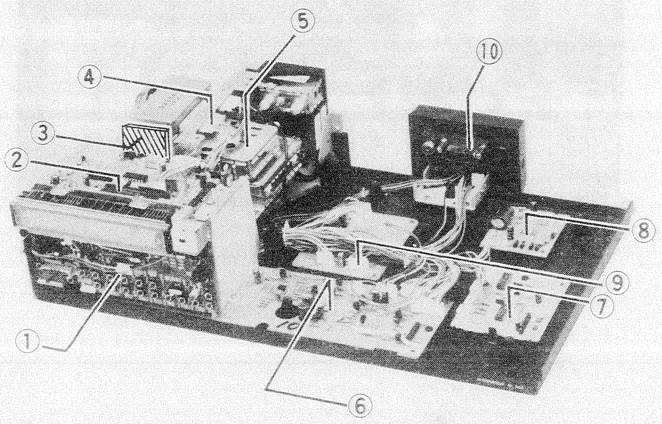


Fig. 37 PC Board Location

2. Removing the Case

1. Top cover (Fig. 38)

1) Remove 2 top cover fixing screws from the rear cover.
2) Lift the rear of the top cover to release its fitting with the front cover.

2. Connector case (Fig. 38)

1) Remove 2 screws from the connector case.
2) Lift the connector case.

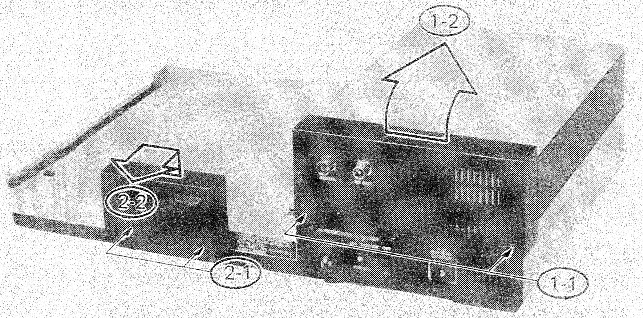


Fig. 38 Top Cover, Connector case

3. VTR Table (Fig. 39)

1) Remove the connector case while referring to the "Connector case removal".
2) Remove 5 screws on the table to lift the connector case, and then lift the whole of the table.

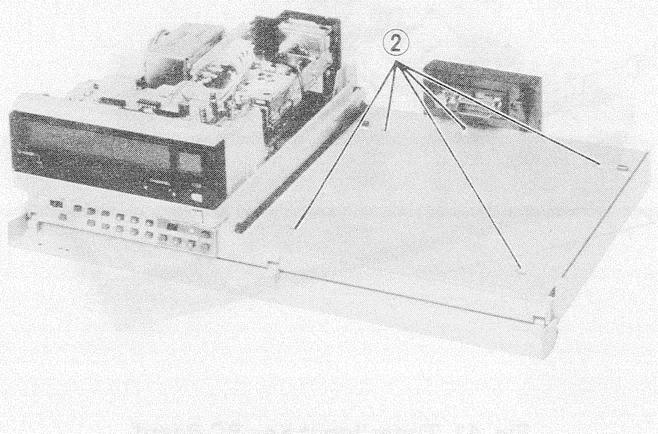


Fig. 39 VTR Table

4. Front cover (Fig. 40)

1) Remove the VTR Table
2) Remove 3 screws from the bottom cover.
3) Remove 2 screws from the top of the front cover.
   * Engage the switch slider at the back of the front cover with the switch on the Tiner/Input key PC Board when installing the front cover.

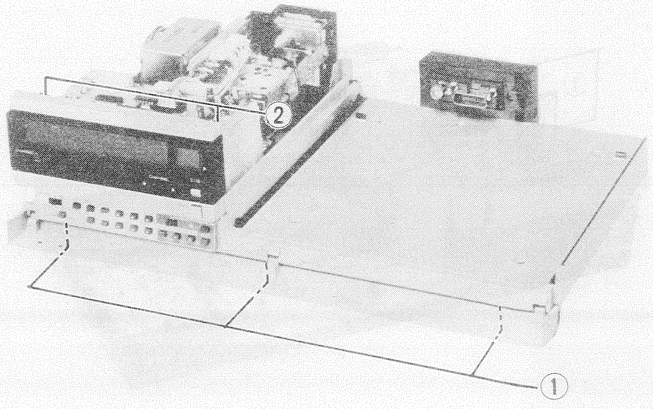


Fig. 40 Front Cover

3. Removing the PC Boards

1. Timer/Input key PC Board (Fig. 41)

1) Disconnect 2 connector CN111 (6P), CN112 (5P) from the V·S Tuning PC Board.
2) Remove 2 screws on the PC Board.

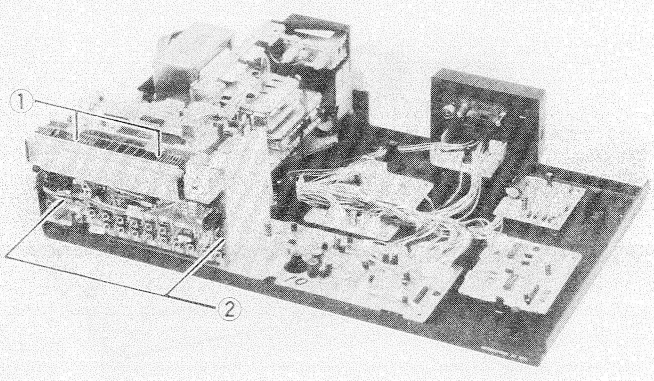


Fig. 41 Timer/Input Key PC Board

2. V·S Tuning PC Board (Fig. 42)

1) Disconnect connectors PG701 (9P), PG702 (6P), PG711 (6P), PG712 (5P), PG801 (9P) and CN722 (4P), CN723 (4P).
2) Release 2 tabs which fix the V·S Tuning PC Board.

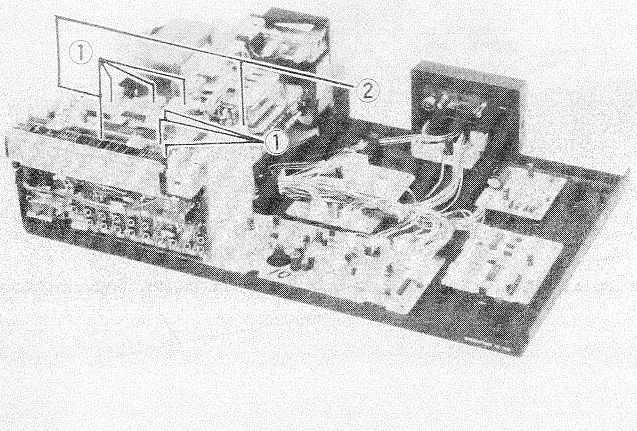


Fig. 42 V·S Tuning PC Board

3. Regulator PC Board (Fig. 43)

1) Remove 5 screws which fix the PC Board holder.
2) Lift the PC Board holder and remove 2 screws which fix the regulator PC Board.
3) Disconnect the connectors CN101 (10P), CN102 (6P), CN108 (4P) from the Timer/Input key PC Board.
4) Disconnect connectors PG906 (4P), PG908 (5P), PG909 (12P), PG911 (9P) and CN910 (6P).

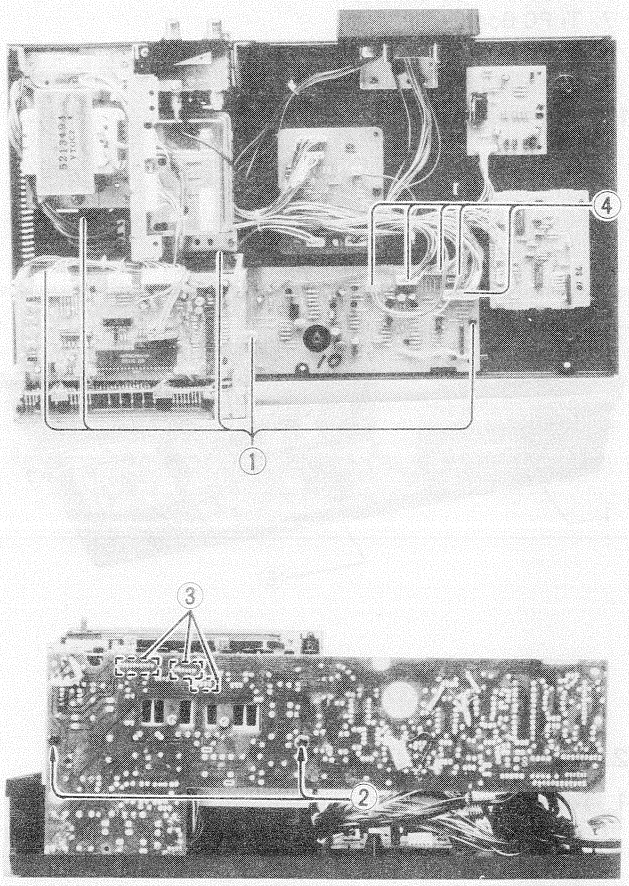


Fig. 43 Regulator PC Board

4. T_1 PC Board (Fig. 44)

1) Remove 1 screw on the PC Board.
2) Release 1 tab which fix the T_1 PC Board.
3) Disconnect connectors PG401 (4P), PG402 (4P), PG403 (3P), PG404 (4P).

5. T_2 PC Board (Fig. 44)

1) Remove 1 screw on the PC Board.
2) Release 1 tab which fix the T_2 PC Board.
3) Disconnect connectors PG451 (5P).

6. Wiring PC Board (Fig. 44)

1) Remove 1 screw on the PC Board.
2) Release 1 tab which fix the Wiring PC Board.
3) Disconnect connectors PG601 (6P), PG602 (6P), PG603 (4P), PG604 (5P).

7. Tuner/IF Block (Fig. 44)

1) Remove 2 screws fixing the rear panel.
2) Remove 3 tuner/IF block fixing screws.
3) Disconnect connectors PG751 (6P), PG752 (9P) and RF cable.
   * Tighten the screw near the regulator PC Board together with the chassis GND when installing the block.

8. S_1 PC Board (Fig. 44)

1) Remove 2 screws from the transformer bracket Assembly.
2) Remove 4 nylon rivets which fix the S_1 PC Board.

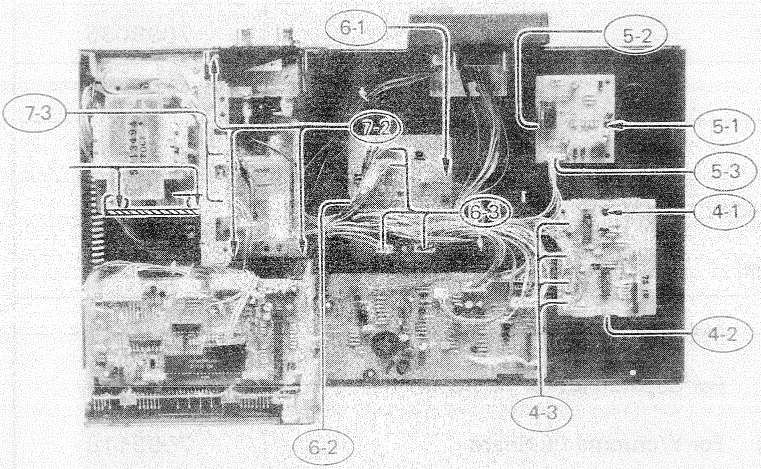


Fig. 44 T_1 PC Board, T_2 PC Board, S_1 PC Board
Wiring PC Board, Tuner/IF Block

ADJUSTMENT

SERVICING JIGS AND TOOLS

ITEM	PARTS NAME		PARTS NO.
1.	Back tension meter		7099004
2.	Alignment tape		7099046
3.	Height reference plate (Master plane)		7099041
4.	Torque gauge		7099039
5.	Torque gauge adaptor		7099035
6.	Dummy reel		7099043
7.	Reel disk height jig		7099001
8.	1.5 mm hexagonal wrench		–
9.	Fan type tension gauge		–
10.	Relay connector (7P)	For Reel Motor PC Board	7099110
	Relay connector (9P)	For Capstan Motor PC Board	7099119
	Relay connector (10P)	For Y/chroma PC Board	7099118
	Relay connector (14P)	For System Control PC Board	7099117
	Relay connector (26p)	For Tuner/Timer PC Board	7099121

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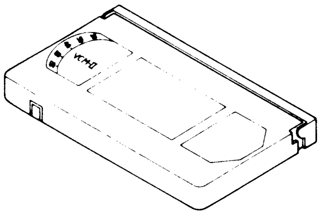

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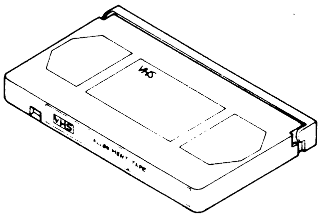

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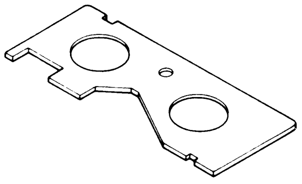

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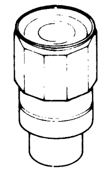

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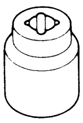

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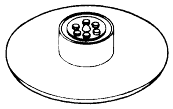

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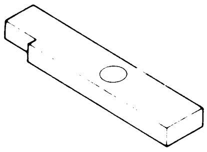

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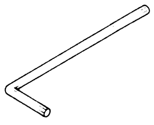

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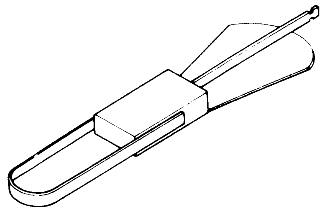
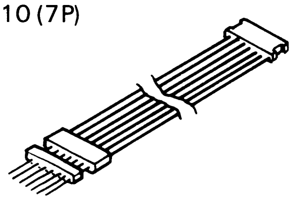
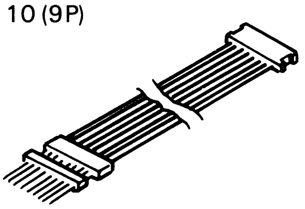


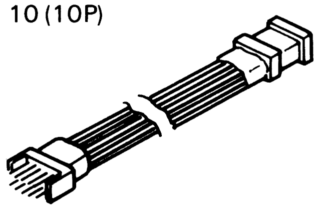
10 (7P)



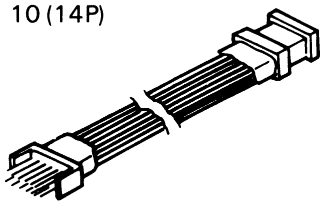
10 (9P)



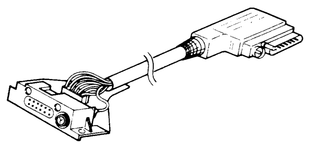
10 (10P)



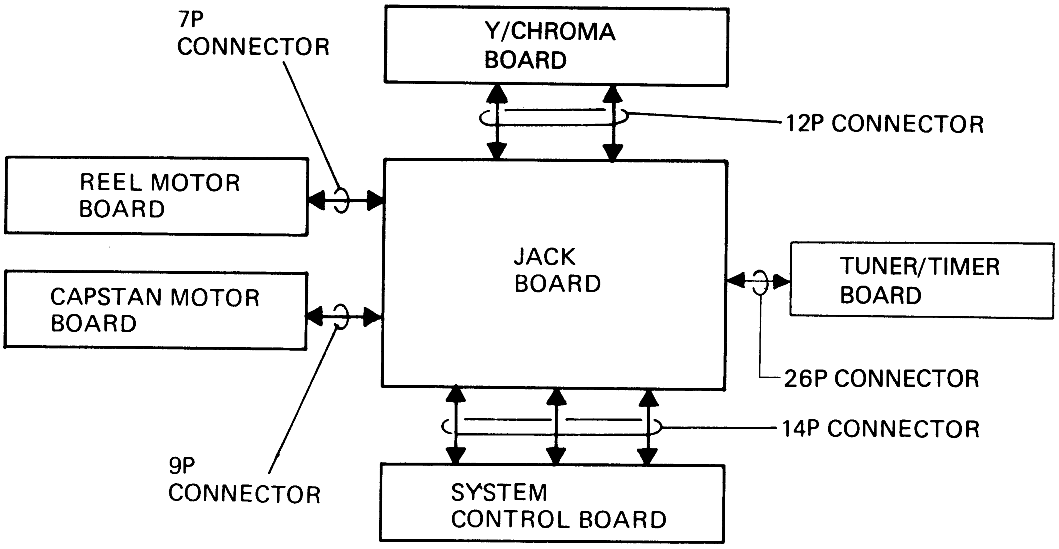
10 (14P)



10 (26P)



SERVINCING CONNECTOR RELATIONSHIP


7P CONNECTOR
Y/CHROMA BOARD
12P CONNECTOR
REEL MOTOR BOARD
JACK BOARD
TUNER/TIMER BOARD
CAPSTAN MOTOR BOARD
26P CONNECTOR
14P CONNECTOR
9P CONNECTOR
SYSTEM CONTROL BOARD

ELECTRIC CIRCUIT ADJUSTMENT

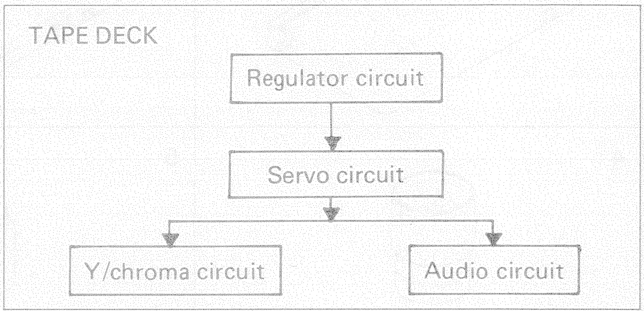
VT-7E (TAPE DECK)

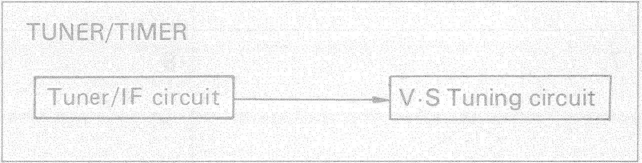
Test equipement, jigs and tapes required for overall circuit adjustment.

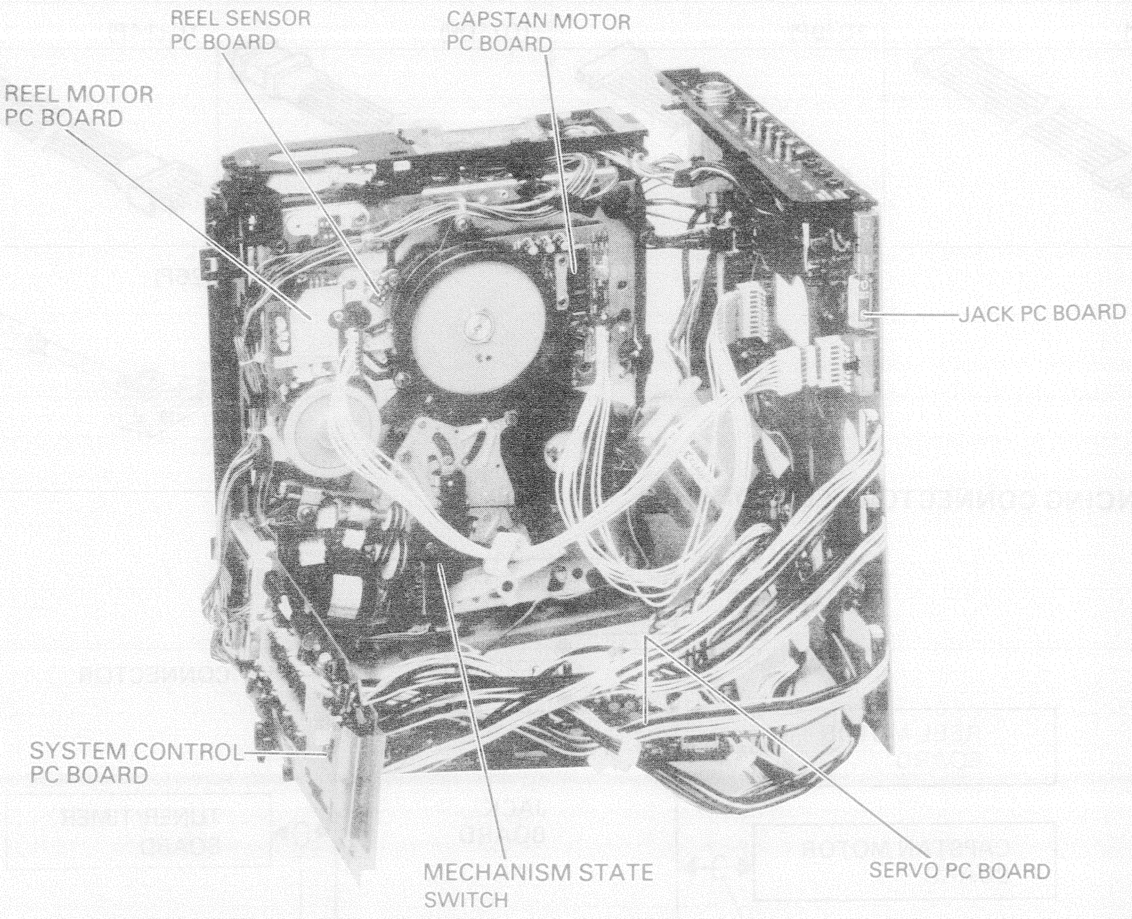
1) Colour TV set
2) Oscilloscope
3) VTVM
4) Colour bar signal generator
5) DC power supply
6) DC voltmeter
7) Alignment tape
8) Blank tape

Order of adjustment

Perform adjustment in the order shown below.


TAPE DECK
Regulator circuit
Servo circuit
Y/chroma circuit
Audio circuit


TUNER/TIMER
Tuner/IF circuit
V·S Tuning circuit

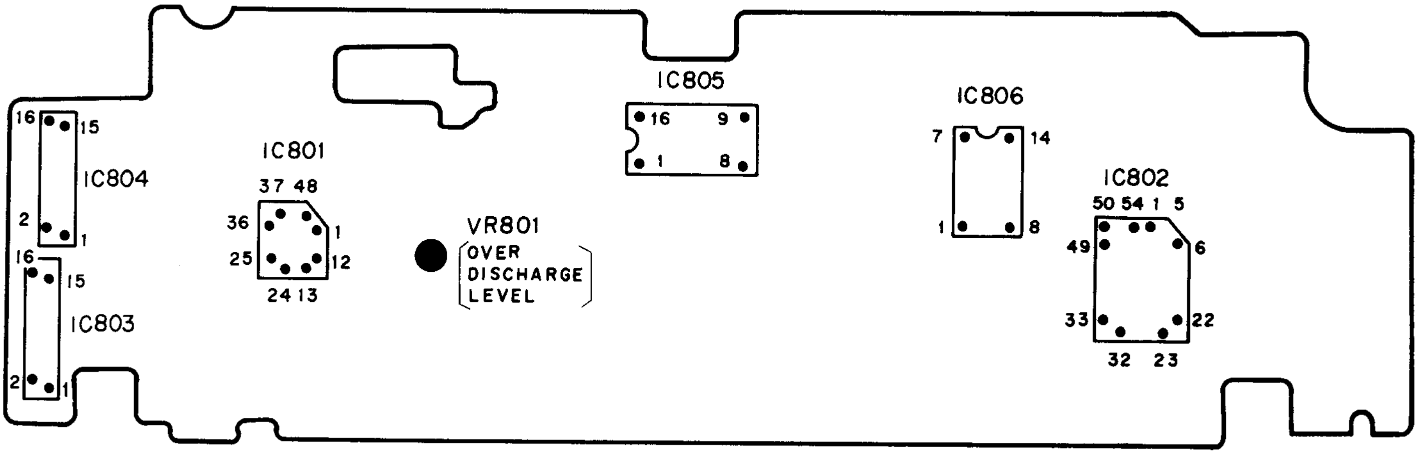

REEL SENSOR PC BOARD
CAPSTAN MOTOR PC BOARD
REEL MOTOR PC BOARD
JACK PC BOARD
SYSTEM CONTROL PC BOARD
MECHANISM STATE SWITCH
SERVO PC BOARD

Portable VTR with the jack PC Board opened

Note: The VTR can be disassembled when the connectors shwon on the previous page are used.
The servo board is not removed from the jack PC Board.

REGULATOR CIRCUIT ADJUSTMENT (System Control PC Board)

Parts locations

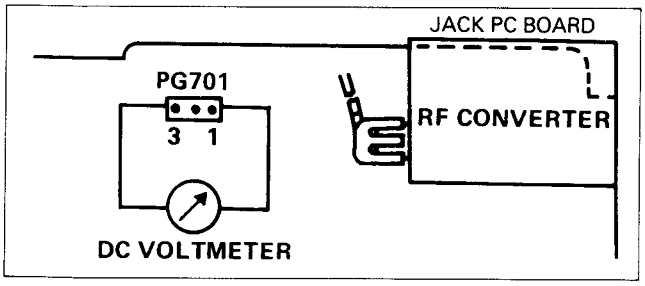

IC805
16
9
1
8
IC806
7
14
1
8
IC802
50 54 1 5
49
6
33
22
32 23
IC801
37 48
36
1
25
12
24 13
VR801
OVER
DISCHARGE
LEVEL
IC804
16
15
2
1
IC803
16
15
2
1

SYSTEM CONTROL PC BOARD (PARTS SIDE)

1. Overdischarge Level Adjustment

Set the battery overdischarge detection level to 11.5V by this adjustment. When the battery voltage drops to 10.3 ~ 10.8V, the VTR is automatically shut off to protect the battery from damage caused by overdischarge.
When this adjustment cannot be done properly and the set level is lower than 11.5V, the overdischarge detection level lowers and the battery service life deteiorates. On the other hand, when it is adjusted at a voltage higher than 11.5V, the usable time per charge is shortened.

Connecting test equipment
Connect a DC voltmeter and DC power supply to PG701 on the Jack PC Board as follows.
Connection: (+) to PG701 pin 3
(–) to PG701 pin 2


JACK PC BOARD
PG701
3 1
RF CONVERTER
DC VOLTMETER

State of VTR
Stop mode

Position to be adjusted
VR801

Adjustment procedure

1) Turn VR801 fully clockwise.
2) Set the voltage of the DC power supply to 11.6V.
3) Turn VR801 counterclockwise so that "BATT" is indicated on the counter display on the system control PC Board.
4) After adjustment is completed, operate the DC Power supply to check that the VTR is automatically shut off when the Power voltage is set to 10.3-10.8V.

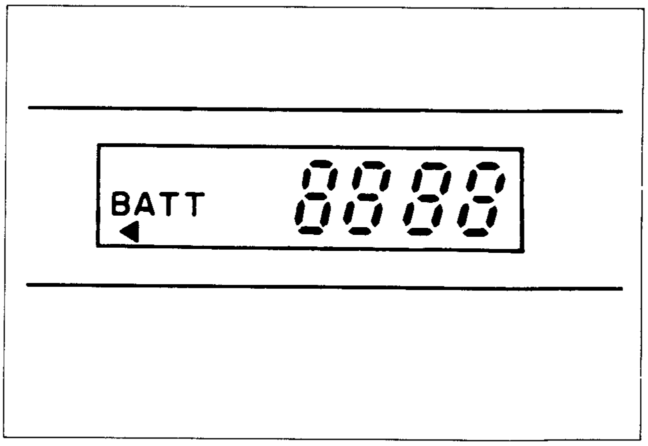


Fig. 1 LCD Display

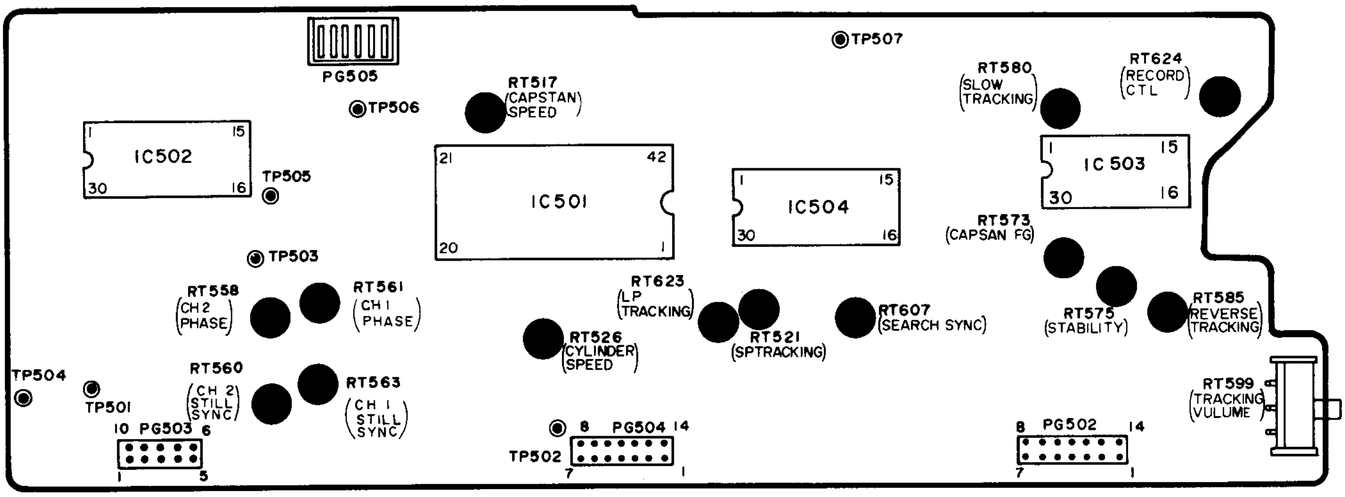
SERVO CIRCUIT ADJUSTMENT (Servo PC Board, Jack PC and Y/Chroma PC Board)

Parts locations

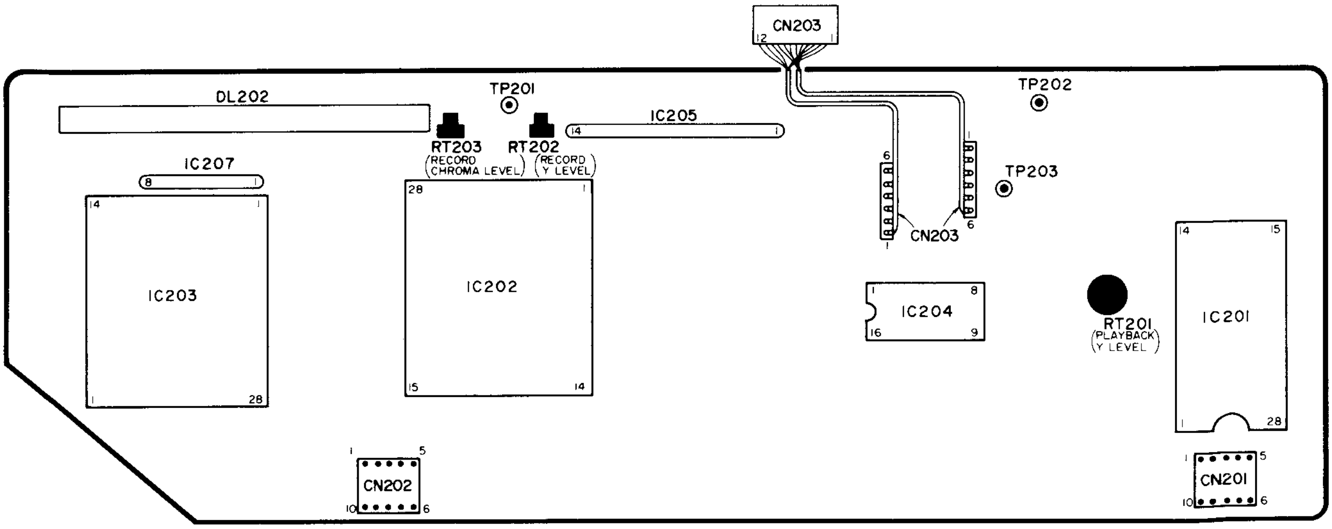
[Jack PC Board is described on page]

PG505
(TEST PLUG)

1	CYL. SPEED
2	CAPST. SPEED
3	CYL. FREE RUN
4	5V
5	CAPST. FG
6	C. FREE RUN


PG505
TP507
RT580 (SLOW TRACKING)
RT624 (RECORD CTL)
RT517 (CAPSTAN SPEED)
TP506
IC502
1 15 30 16
TP505
IC501
21 42 20 1
IC504
1 15 30 16
IC503
1 15 30 16
RT573 (CAPSAN FG)
TP503
RT558 (CH2 PHASE)
RT561 (CH1 PHASE)
RT623 (LP TRACKING)
RT526 (CYLINDER SPEED)
RT521 (SPTRACKING)
RT607 (SEARCH SYNC)
RT575 (STABILITY)
RT585 (REVERSE TRACKING)
TP504
TP501
RT560 (CH 2 STILL SYNC)
RT563 (CH 1 STILL SYNC)
10 PG503 6
1 5
8 PG504 14
TP502
7 1
8 PG502 14
7 1
RT599 (TRACKING VULUME)

SERVO PC BOARD (SOLDER SIDE)


CN203
DL202
TP201
IC205
TP202
RT203 (RECORD CHROMA LEVEL)
RT202 (RECORD Y LEVEL)
IC207
TP203
IC203
IC202
CN203
IC204
RT201 (PLAYBACK Y LEVEL)
IC201
CN202
CN201

Y/CHROMA PC BOARD (SOLDER SIDE)

1. Cylinder Speed Adjustment

This adjustment locks the cylinder servo to the system signals and maintains a constant cylinder speed of 1500 R.P.M.
When this adjustment cannot be done properly, horizontal stability is degraded or the picture has much noise.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of the unit and feed colourbar signal.
2) Connect the oscilloscope to PG505 pin 1.

State of VTR

Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode.

Position to be adjusted

RT526

Adjustment procedure

1) Short-circuit PG505 pin 3 and PG505 pin 4.
2) Adjust RT526 so that the sampling pulse superimposed on the sawtooth wave stands still or moves slowly.
3) Disconnect the short-circuit PG505 pin 3 and PG505 pin 4 (done in item 1). Check that the sampling pulse stands still at the trailing edge of the sawtooth wave.

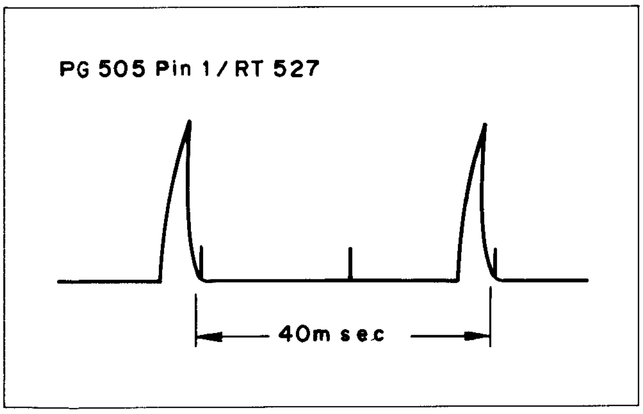


Fig. 2 Cylinder speed

2. Capstan Speed Adjustment

This adjustment locks the capstan servo to the system signals and maintains a constant tape transport speed.

SP: 2.34 cm/sec
LP: 1.17 cm/sec

When this adjustment cannot be done properly, the vertical stability of the picture is degraded or the picture has much noise.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of the instrument and feed colour bar signal.
2) Connect the oscilloscope to PG505 pin 2.

State of VTR

Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode.

Position to be adjusted

RT517

Adjustment procedure

1) Short-circuit PG505-PIN 4 and PG-PIN 6.
2) Adjust RT517 so that the sampling pulse superimposed on the sawtooth wave stands still or moves slowly.
3) Disconnect the short-circuit PG505-PIN 4 and PG505-PIN 6 (done in item 1). Check that the sampling pulse stands still at the leading edge of the sawtooth wave.

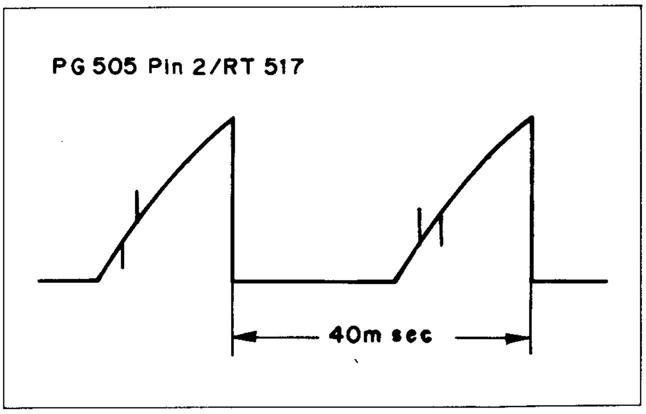


Fig. 3 Capstan speed

3. Head Switching Point Adjustment

CH-1 MM and CH-2 MM of the cylinder tach pulse circuit determine the video head switching point during playback. Misadjustment of CH-1 MM and CH-2 MM of the cylinder tach pulse circuit may cause the head switching noise in the picture and/or vertical jitter.

Connecting test equipment

1) Connect CH-1 terminal of the oscilloscope to TP202 (SW25 Hz signal output) on the Y/Chroma PC Board.
2) Connect CH-2 terminal of the oscilloscope to the video output jack located on the side of unit.

State of VTR
Playback the alignment tape.

Position to be adjusted
RT561 (CH-1 PHASE)
RT558 (CH-2 PHASE)

Adjustment procedure

1) Apply synchronization in CH-1 and set the sync slope to (–).
2) Adjust RT561 so that the vertical sync front porch is set to 6.5 ± 0.5 horizontal lines before trailing edge of the SW 25 Hz signal.
3) Set the sync slope to (+).
4) Adjust RT558 so that the vertical sync front porch is set to 6.5 ± 0.5 horizontal lines before leading edge of the SW 25 Hz signal.

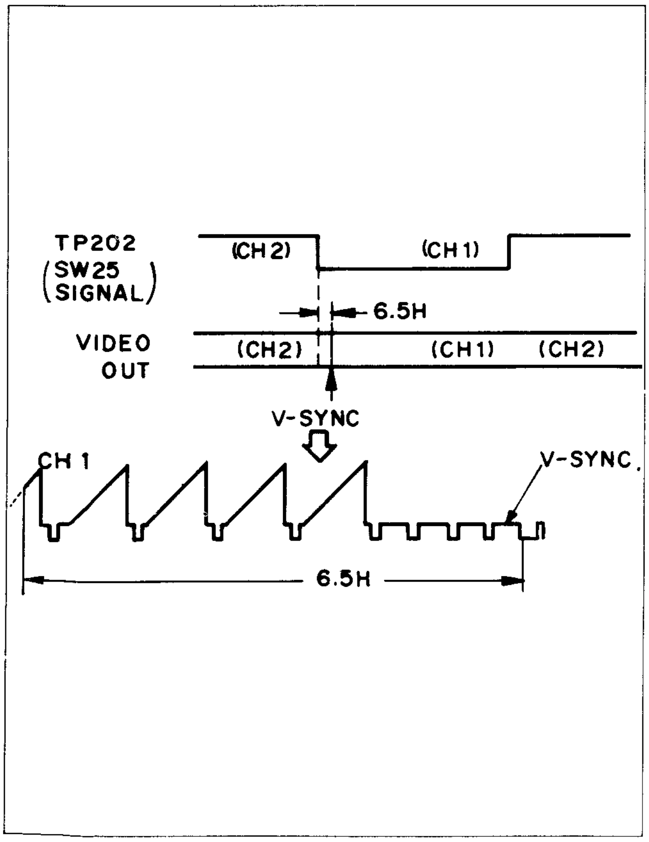


Fig. 4 Head Switching Point

4. Record CTL Adjustment

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of unit and feed colourbar signal.
2) Connect CH-1 terminal of the oscilloscope to TP202 (SW 25 Hz signal output) on the Y/Chroma P.C. Board.
3) Connect CH-2 terminal of the oscilloscope to TP507 (CTL signal) on the Servo P.C. Board.

State of VTR
Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode.

Position to be adjusted
RT624

Adjustment procedure
Adjust RT624 so that the CTL pulse is set to 420μsec before leading edge of the SW 25 Hz signal

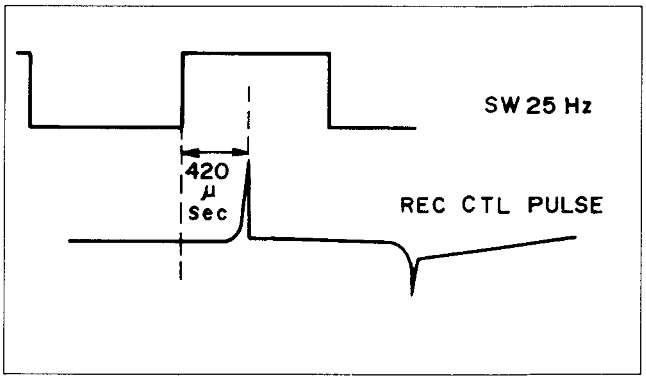


Fig. 5 Record CTL

5. Tracking Preset Adjustment

Tracking during playback of the tape recorded on this VTR is done by these adjustments. When these adjustments are incorrect, it results in a noisy picture with the tracking control set to the center click position or noise may not be removed completely with the tracking control turned.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of VTR and apply colour bar signal.
2) Connect CH-1 teminal of the oscillosope to TP202 (SW25).
3) Connect CH-2 teminal of the oscilloscope to PG505 Pin 2.
4) Set the tracking control to its center click position.

SP Tracking Preset

State of VTR

1) Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the recorded signal.

Position to be adjusted

RT521

Adjustment procedure

1) Adjust SP tracking preset (RT521) to much the leading edge of the CTL pulse and V. SYNC in the video signal.

LP Tracking Preset

State of VTR

1) Set the record speed select switch to the LP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the recorded signal.

Position to be adjusted

RT623

Adjustment procedure

1) Adjust LP tracking preset (RT623) to much the leading edge of the CTL pulse and V. SYNC in the video signal.

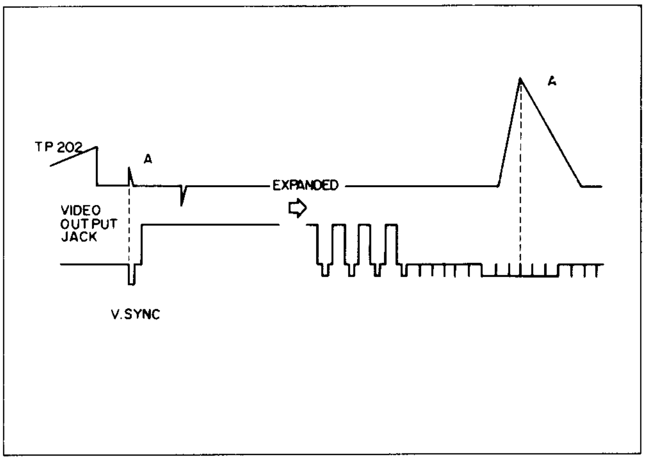


Fig. 6 Tracking Preset

6. Capstan FG Adjustment

This adjustment sets the duty of the CFG pulse within the specified values, causing the VTR to operate normally in the slow mode.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of unit and feed colour bar signal.
2) Connect the oscilloscope to PG505 pin 5.

State of VTR

Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode.

Position to be adjusted

RT573

Adjustment procedure

1) Adjust RT573 so that the duty of the waveform is set to 50%-50%.

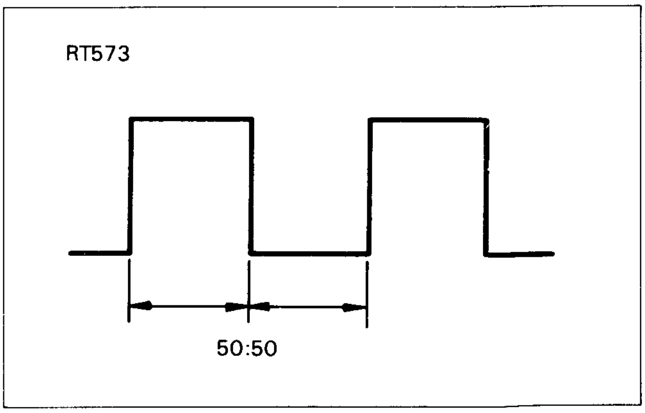


Fig. 7 Capstan FG

7. Search Sync Adjustment

This adjustment makes the frequency of the horizontal sync signal in the forward/reverse searach mode the same as that in the play mode. If this adjustment is not complete, misconvergence occurs. Perform this adjustment in the still pause mode.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of unit and feed colourbar signal.
2) Connect the oscilloscope to the video output jack.

State of VTR

1) Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the record signal.

Position to be adjusted

RT607

Adjustment procedure

1) Obtain a 1H period of the video signal on the oscilloscope by the delay operation or horizontal scan enlarging operation. (Since the waveforms cannot be observed at the same time in the still pause and play modes, located horizontal sync signal (A) during play on the place easy to be observed.)
2) Place the VTR in the still pause mode and adjust RT607 to cancel the drift of the phases (betweeen A and A') of the horizontal sync signals between in the play and still pause modes.

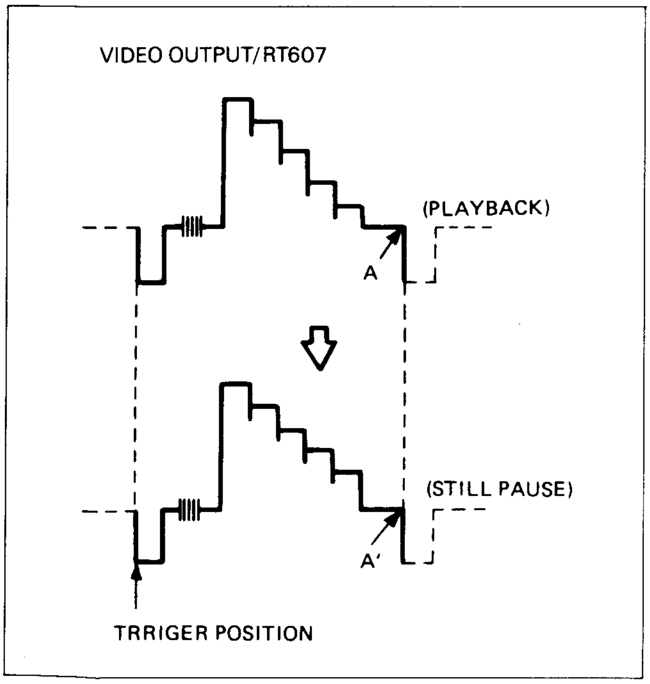


Fig. 8 Search Sync

8. Reverse Playback Tracking Adjustment

Tracking during reverse playback of the tape recorded on this VTR is done by these adjustment.
When these adjustments are incorrect, the noise band appears on the center of the screen during reverse playback.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of VTR and apply colourbar signal.
2) Connect the RF output to the TV AERIAL terminal.

State of VTR

1) Load VTR with a blank tape and place in "SP Record" mode. (Record for the time enough to adjust during reverse playback.)
2) Playback the recorded signal in reverse.

Position to be adjusted

RT585

Adjustment procedure

Adjust RT585 to appear the noise band while moving it center to the top and bottom on the screen.

9. Slow Tracking Adjustment

Tracking during slow playback of the tape recorded on this VTR is done by this adjustment. When the adjustment is incorrect, the noise band appears on the center of the screen during slow playback.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of unit and feed colourbar signal.
2) Connect the monitor TV to the VHF output jack on the rear panel of the tuner module.

State of VTR

1) Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the recorded signal in the slow mode.

Position to be adjusted

RT580

Adjustment procedure

Adjust RT580 to eliminate the noise band while moving it to the top or bottom on the screen.

10. Stability Adjustment

This is done to control the lateral shakes of the picture occurring due to the intermittent operation during the slow speed. Incorrect adjustment causes lateral shakes of the picture.

This adjustment is done in sequence with the completion of the capstan slow mode adjustment.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of unit and feed colourbar signal.
2) Connect the monitor TV to the VHF output jack on the rear panel of the tuner module.

State of VTR

1) Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the recorded signal in the slow mode.

Position to be adjusted

RT575

Adjustment procedure

Adjust RT575 so that the lateral shakes of the Picture is minumum.

11. Vert drive pulse adjustment

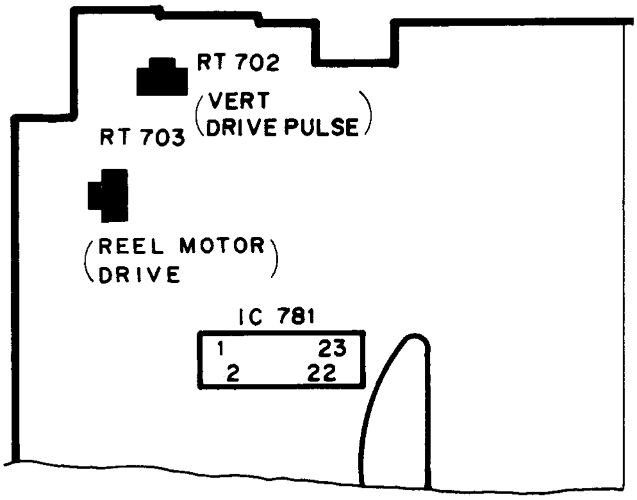
The artificial pulse position is determined around the real vert pulse to stabilize the picture in the trick play.

When this adjustment is incorrect, the picture in trick play fluctuates.

Connecting test equipment

1) Connect CH-1 terminal of the oscilloscope to TP202 (SW25 Hz signalou tput) on the Y/chroma PC Board. bar signal.
2) Connect CH-2 terminal of the oscilloscope to the IC504 pin 15.

Jack Circuit Board Parts Location



JACK P.C BOARD (PARTS SIDE)

SP Vert Drive Pulse Adjustment

State of VTR

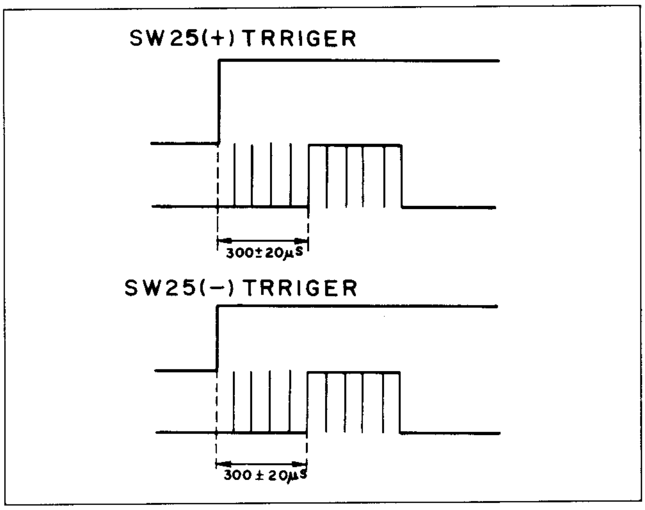
1) Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the recorded signal in the still mode.

Position to be adjusted

RT563 (CH-1 STILL SYNC)
RT560 (CH-2 STILL SYNC)
RT702 (VERT DRIVE PULSE)

Adjustment procedure

1) Adjust RT563 so that the vertical sync front porch is set to 300 ±20 μs horizontal lines before leading edge of the SW 25 Hz signal.
2) Adjust RT560 so that the vertical sync front porch is set to 300 ±20 μs horizontal lines before triling edge of the SW 25 Hz signal.
   - After adjustment, be sure to confirm that no vertical oscillation occurs on screen.
     If it happens, adjust RT702 on Jack P.C.B. so that vertical oscillations are eliminated.



12. Reel Motor Drive Adjustment

This adjustment controled the torque of the reel motor. When this adjustment is incorrect, slack of the tape occurs if the torque is weak and the tape is tangled and tape trouble becomes unstable if the torque is strong.

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of unit and feed the colourbar signal.
2) Connect the VTVM to the CN707 pin 6.

State of VTR

1) Playback the recorded tape at reverse mode.

Position to be adjusted

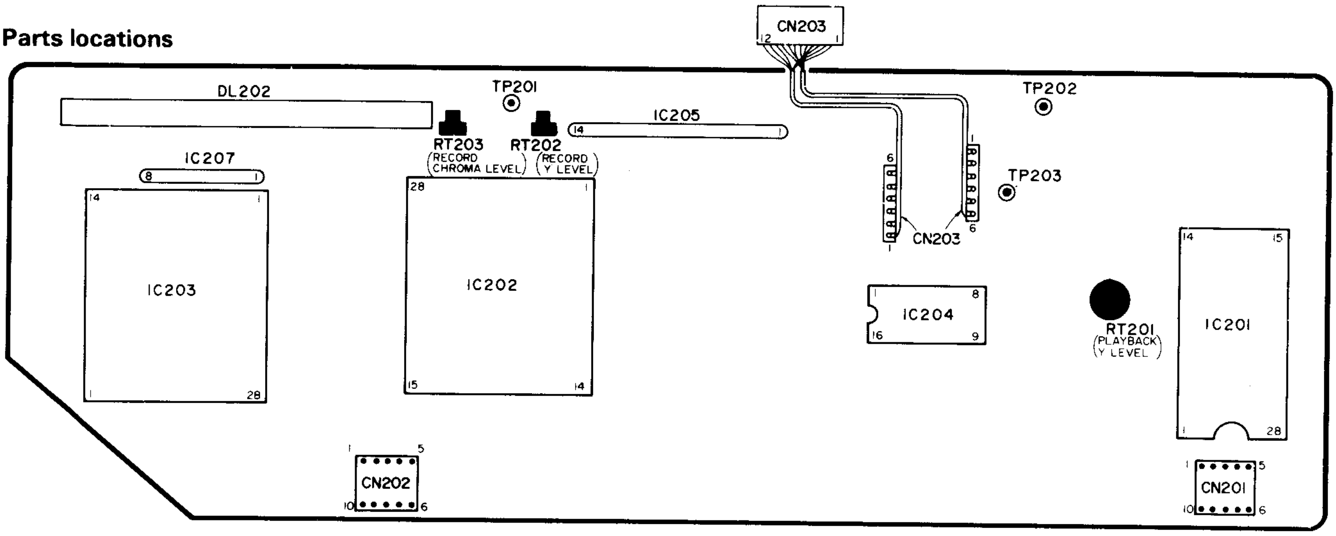
RT703

Adjustment procedure

Adjust reel motor drive (RT703) for 3.7 ±0.1V.

Y/CHROMA CIRCUIT ADJUSTMENT (Y/Chroma PC Board)

Parts locations


CN203
DL202
TP201
IC205
TP202
RT203
(RECORD CHROMA LEVEL)
RT202
(RECORD Y LEVEL)
IC207
TP203
CN203
IC203
IC202
IC204
RT201
(PLAYBACK Y LEVEL)
IC201
CN202
CN201

Y/CHROMA PC BOARD (SOLDER SIDE)

1. Record Chroma and Y Level Adjustments

RECORD CHROMA LEVEL

Optimum colour level when recording is regulated by this adjustment.

When adjustment is not complete and the level is too high, the diamond beats can be seen in the screen; on the other hand, when the level is too low, the colour S/N ratio deteriorates, that is, colour is degraded.

RECORD Y LEVEL

Optimum record Y level is regulated by this adjustment.

When adjustment is not complete and the level is too high, B/W may invert or the S/N ratio may deteriorate, that is, the picture may become rough. On the other hand, when the level is too low, the S/N ratio deteriorates.

Record Y level

Level
140 ±10 mVp-p

Record chroma level

Cylinder mark	Level
No mark	25 ±3 mVp-p
1	30 ±3 mVp-p
2	35 ±3 mVp-p
3	40 ±3 mVp-p
4	40 ±3 mVp-p

Table 1

Connecting test equipment

1) Connect the colourbar generator to the video input jack located on the side of the unit and feed colour bar signal.
2) Connect the oscilloscope to TP203.

State of VTR

Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode.

Position to be adjusted

RT203 (Record Chroma Level)
RT202 (Record Y Level)

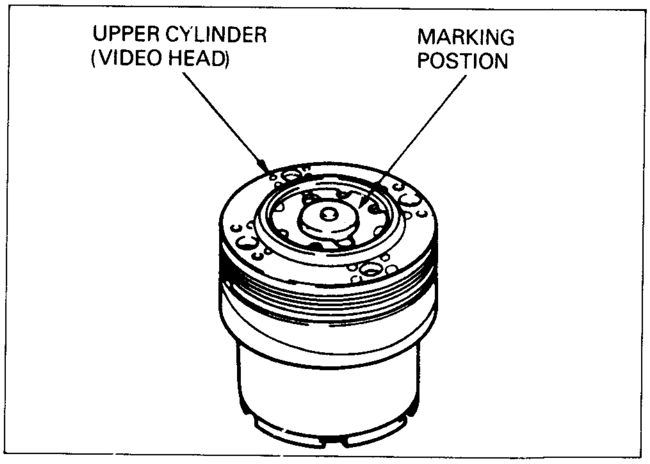

UPPER CYLINDER
(VIDEO HEAD)
MARKING
POSTION

Fig. 9 Cylinder marking

Adjustment procedure

1) Turn RT202 fully counter-clockwise.
2) Adjust RT203 to set the max. chroma signal to the marked value.
3) Adjust RT202 to set the sync tip to 140 ±10 mVp-p.

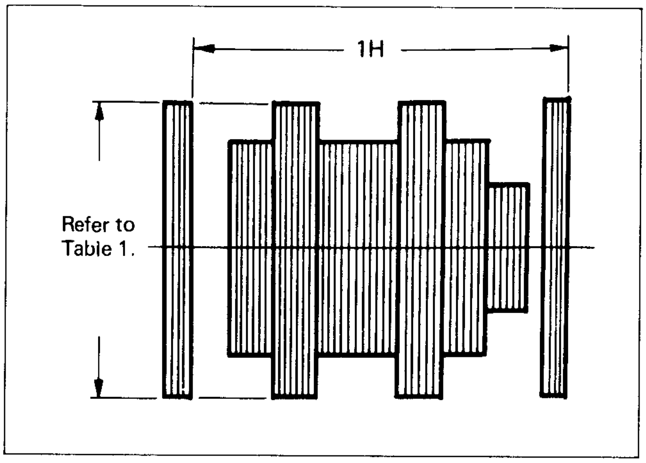


Fig. 10 Record Chroma Level

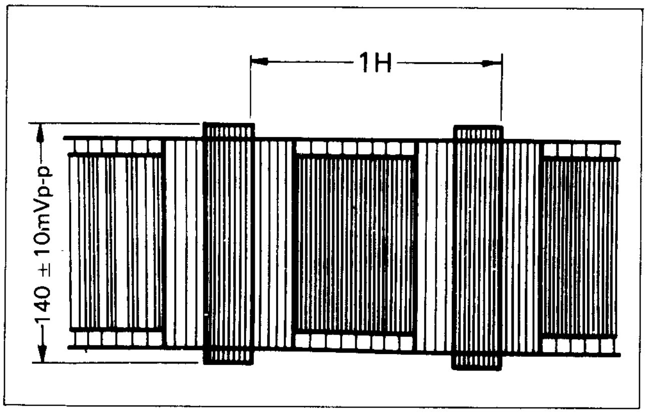


Fig. 11 Record Y Level

2. Playback Y Level Adjustment

Optimum playback Y level is regulated by this adjustment.

Connecting test equipment

1) Connect the colour bar generator to the video input jack located on the side of the unit and feed colourbar signal.
2) Connect the oscilloscope to the video output jack located on the side of the unit.

State of VTR

1) Set the record speed select switch to the SP position and set the unit with a blank tape to the record mode. (Record for the time enough to adjust during playback.)
2) Rewind the tape and playback the recorded signal.

Position to be adjusted

RT201

Adjustment procedure

Adjust RT201 to set the video output (No-terminated) to 2.0 ±0.1 Vp-p.

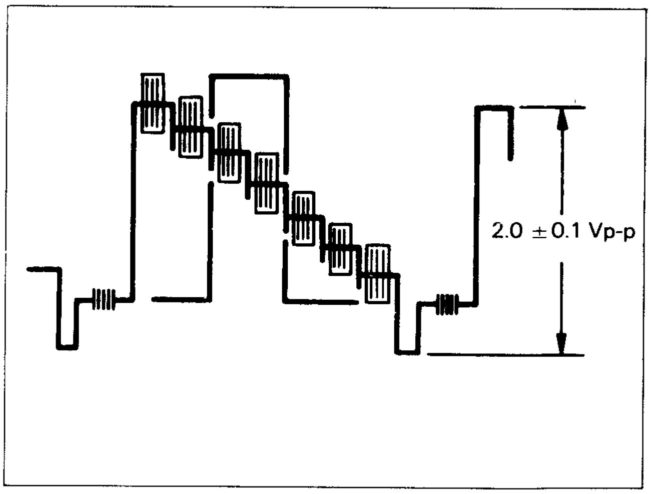
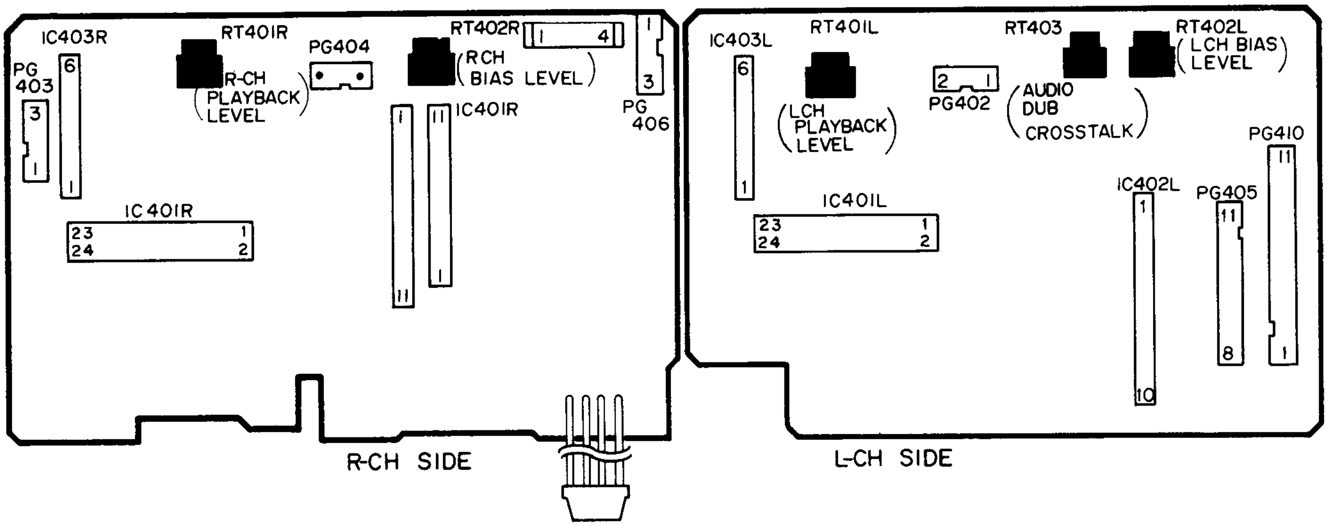


Fig. 12 Playack Y Level

AUDIO CIRCUIT ADJUSTMENT (Audio PC Board)

Parts locations


IC403R
RT401R
PG404
RT402R
RCH BIAS LEVEL
PG 403
R-CH PLAYBACK LEVEL
IC401R
PG 406
IC401R
R-CH SIDE
CN401
IC403L
RT401L
RT403
RT402L
LCH BIAS LEVEL
LCH PLAYBACK LEVEL
PG402
AUDIO DUB CROSSTALK
PG410
IC401L
IC402L
PG405
L-CH SIDE

AUDIO P.C. BOARD (PARTS SIDE)

1. Playback Level Adjustment

The playback level is regulated by this adjustment. When adjustment is not complete and level is too low, the playback level drops and when the level is too high, the playback level becomes higher.

Connecting test equipment

1) Connect the VTVM to the R-ch audio output jack on the side panel.
2) Connect the VTVM to the L-ch audio output jack on the side panel.

State of VTR

Playback the 1 kHz audio track section of the alignment tape.

Position to be adjusted

RT401L
RT401R

Adjustment procedure

1) Adjust RT401R (R-CH PLAYBACK LEVEL) so that the reading of the VTVM is -5 dBm ± 1 dBm.
2) Adjust RT401L (L-CH PLAYBACK LEVEL) so that the reading of the VTVM is -5 dBm ± 1 dBm.

2. Audio Bias Level Adjustment

Optimum audio record bias is regulated by this adjustment. When adjustment is not complete and the level is too low, high frequencies are boosted and distortion increases. On the contrary, when the level is too high, frequency response deteriorates, that is, high frequency are degraded.

Connecting test equipment

1) Connect the VTVM to R-ch of the audio/control head as shown in Fig. 13.
2) Connect the VTVM to L-ch of the audio/control head as shown in Fig. 13.

State of VTR

Load the VTR with a blank tape and place in "SP Record" mode.

Position to be adjusted

RT402R
RT402L

Adjustment procedure

1) Adjust RT402R (R-CH BIAL LEVEL) so that the reading of the VTVM is 310μA.
2) Adjust RT402L (L-CH BIAS LEVEL) so that the reading of the VTVM is 310μA.

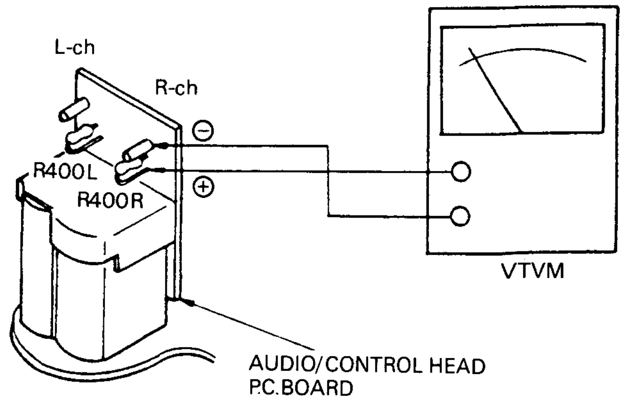
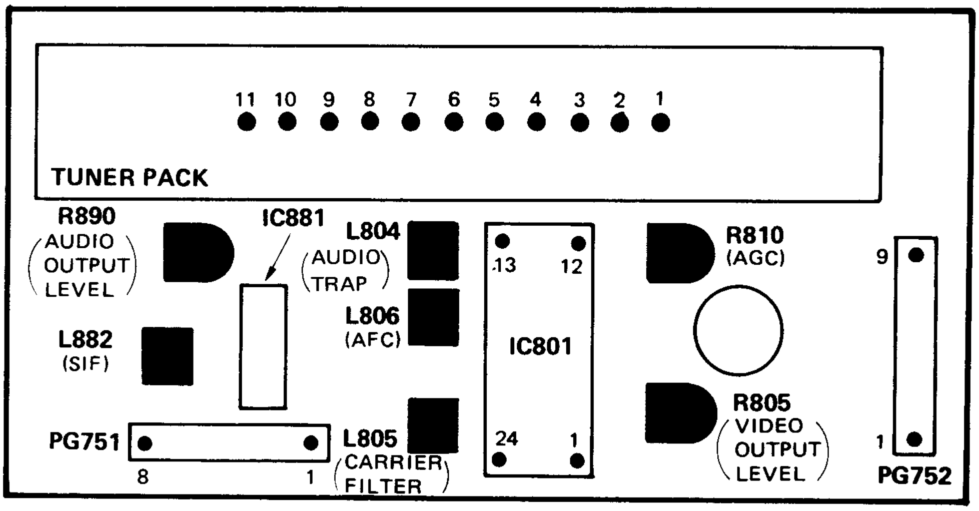

L-ch
R-ch
⊖
⊕
R400L
R400R
VTVM
AUDIO/CONTROL HEAD
P.C.BOARD

Fig. 13 Audio Control Head

VT-TU7E (TUNER/TIMER)
TUNER/IF CIRCUIT ADJUSTMENT (for BS Model)

Note: In the unit, the tuner pack and IF is a single unit. It has been adjusted carefully, but if it gets out of adjustment, adjust it by the following procedure.
When it is desired to adjust the tuner pack and IF remove this block from the unit.



11 10 9 8 7 6 5 4 3 2 1
TUNER PACK
R890
AUDIO OUTPUT LEVEL
IC881
L804
AUDIO TRAP
L806
(AFC)
L882
(SIF)
PG751
8
1
L805
CARRIER FILTER
13
12
IC801
24
1
R810
(AGC)
R805
VIDEO OUTPUT LEVEL
9
1
PG752

IF P.C. BOARD (PARTS SIDE)

1. Carrier Filter Adjustment

Connecting test equipment

1) Connect the sweep marker generator (Output: −30 ± 10 dBm, marker frequency: 39.5 MHz) to IC801 pin 6 of the IF pack via the coupling circuit shown in Fig. 14.
2) Supply +8.9V DC to IC801 pin 12, +12V DC to PG751-PIN 5.
3) Connect the oscilloscope to PG751-PIN 2 and observe the IF signal waveform.

State of VTR

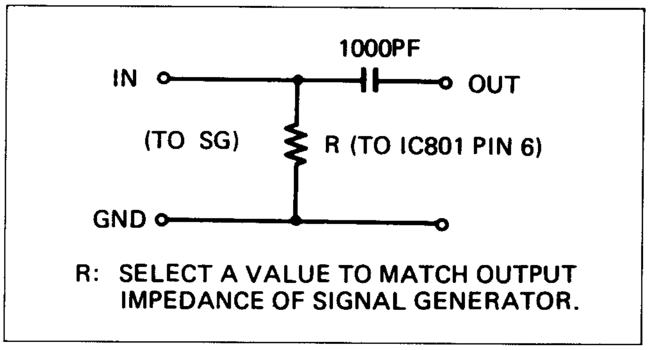
EE mode.

Position to be adjusted

L805

Adjustment procedure

Adjust the core of L805 so that the 39.5 MHz ±50 kHz component of the waveform of video output is maximum. (See Fig. 15)



1000PF
IN
OUT
(TO SG)
R (TO IC801 PIN 6)
GND
R: SELECT A VALUE TO MATCH OUTPUT IMPEDANCE OF SIGNAL GENERATOR.

Fig. 14 Coupling Circuit

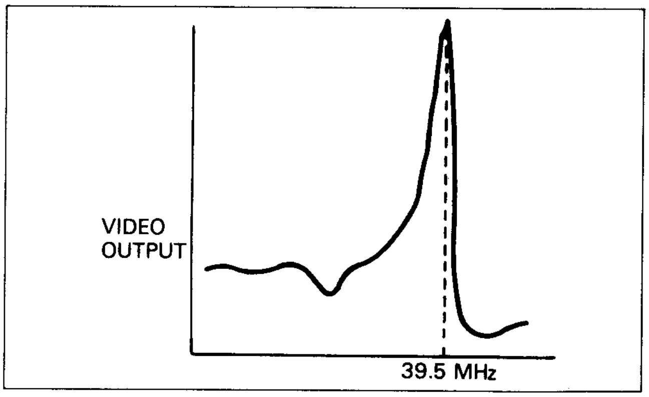


Fig. 15 Carrier Filter

2. Audio Trap Adjustment

Connecting test equipment

1) Connect the sweep marker generator to IC 801 pin 6 of the IF pack via the coupling circuit shown in Fig. 14. (−20 ±10 dBm, marker frequency: 33.50 MHz, 41.5 MHz).
2) Connect the oscilloscope to PG751-PIN 2, +12V DC to PG751-PIN 5.
3) Supply +8.9V DC to IC801 pin 12.

State of VTR

EE mode.

Position to be adjusted

L804

Adjustment procedure

Adjust the core of L804 so that the level of audio trap frequency (33.5 MHz) is minimum. (See Fig. 16)

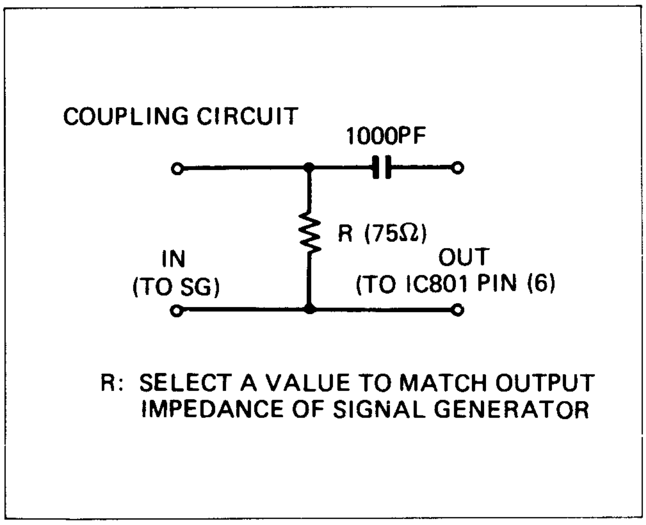

COUPLING CIRCUIT
1000PF
R (75Ω)
IN
(TO SG)
OUT
(TO IC801 PIN (6)
R: SELECT A VALUE TO MATCH OUTPUT IMPEDANCE OF SIGNAL GENERATOR

Fig. 14 Coupling Circuit (Repeated)

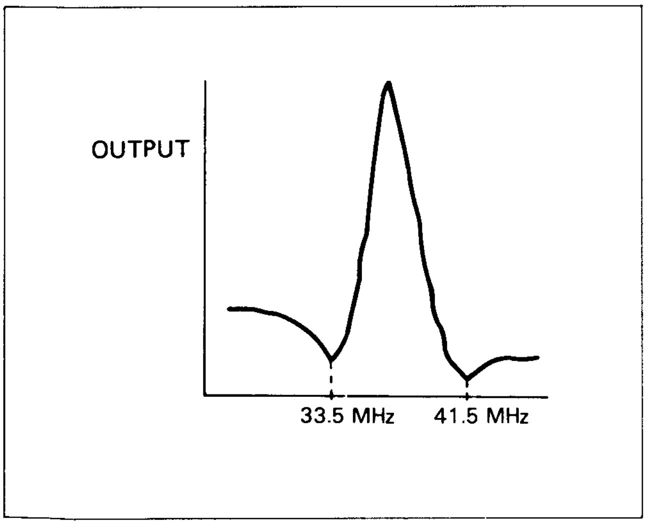


Fig. 16 4.5 MHz Trap

3. AFS Adjustment

Connecting test equipment

1) Connect the sweep marker generator (Output: −4 ±5 dBm, marker frequency: 39.5 MHz) to tuner pack-pin 9 via the coupling circuit shown in Fig. 14.
2) Supply +9.1V DC to IC801 pin 12 +12V DC to PG751-PIN 5.
3) Connect the oscilloscope to PG752-PIN 1 via the coupling circuit shown in Fig. 17.

State of VTR

EE mode.

Position to be adjusted

L806

Adjustment procedure

Adjust L806 so that the output voltage at 39.5 MHz is 6.5V ±1.0V. (See Fig. 18)

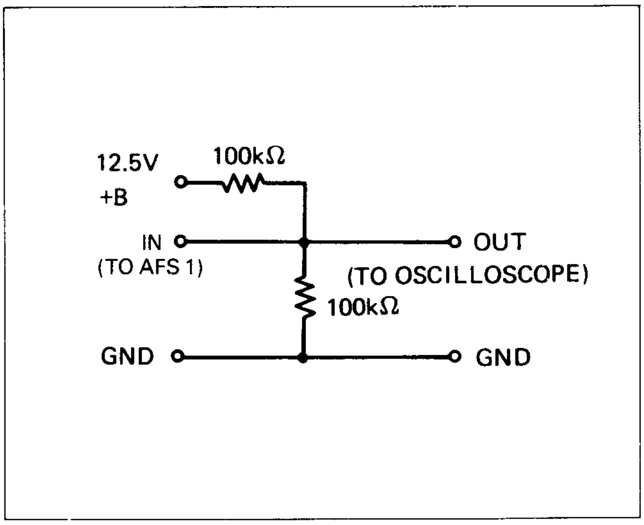

12.5V
+B
100kΩ
IN
(TO AFS 1)
OUT
(TO OSCILLOSCOPE)
100kΩ
GND
GND

Fig. 17 Coupling Circuit

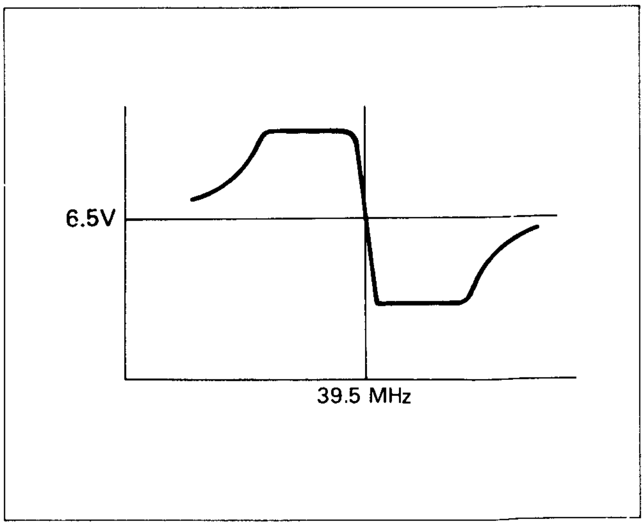


Fig. 18 AFS

4. SIF Adjustment

Connecting test equipment

1) Connect the AM signal gnerator (33.5 MHz ± 5 kHz, −60 ± 5 dBm, Audio signal (400 Hz): AM 30% modulation) to IC801 pin 2 of IF pack via the coupling circuit shown in Fig. 14.
2) Connect the oscilloscope to PG751-PIN 4 and observe the audio IF signal waveform.
3) Supply +8.9V DC to IC801 pin 12 and +12V DC to PG751-PIN 5.

State of VTR

EE mode.

Position to be adjusted

L882

Adjustment procedure

Adjust L882 so that the output is minimum.

5. Video output Adjustment

Connecting test equipment

Connect the colourbar RF generator to the AERIAL terminal of tuner module.

(Input: −41 ± 10 dBm, modulation degree 87.5%).

State of VTR

EE mode.

Position to be adjusted

R805

Adjustment procedure

1) Tune the tuner module for best reception by observing the picture on the screen.
2) Close the channel preset cover. (AFS switch: ON)
3) Connect the oscilloscope to PG751-PIN 2 and adjust R805 so that the output level is 1 Vp-p. (See Fig. 19)

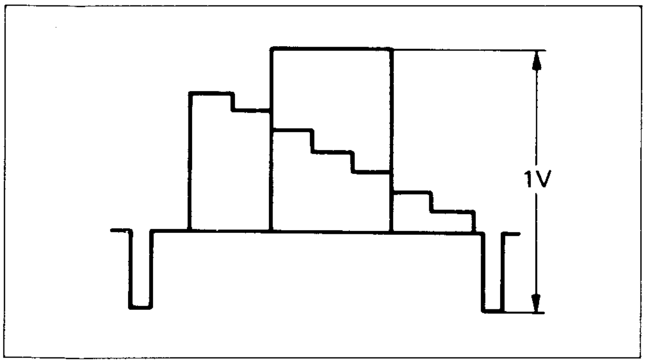


Fig. 19 Video Output Level

6. Audio Output Level Adjustment

Connecting test equipment

Connect the TV signal generator to the AERIAL terminal of tuner modelue.

(Input: −41 ± 10 dBm, 30% modulation with sinewave autio signal at 400 Hz)

State of VTR

EE mode.

Position to be adjusted

R890

Adjustment procedure

1) Tune the tuner module for best reception by observing the picture on the screen.
2) Close the channel preset cover. (AFS switch: ON)
3) Adjust R890 so that the output level is equal to −15 ± 1.5 dBm.

7. AGC Adjustment

Connecting test equipment

Connect the colourbar RF generator to the AERIAL terminal of tuner module.

(Input: For UK model CH68, −49 dBm, modulation degree 87.5%)

Stage of VTR

EE mode.

Position to be adjusted

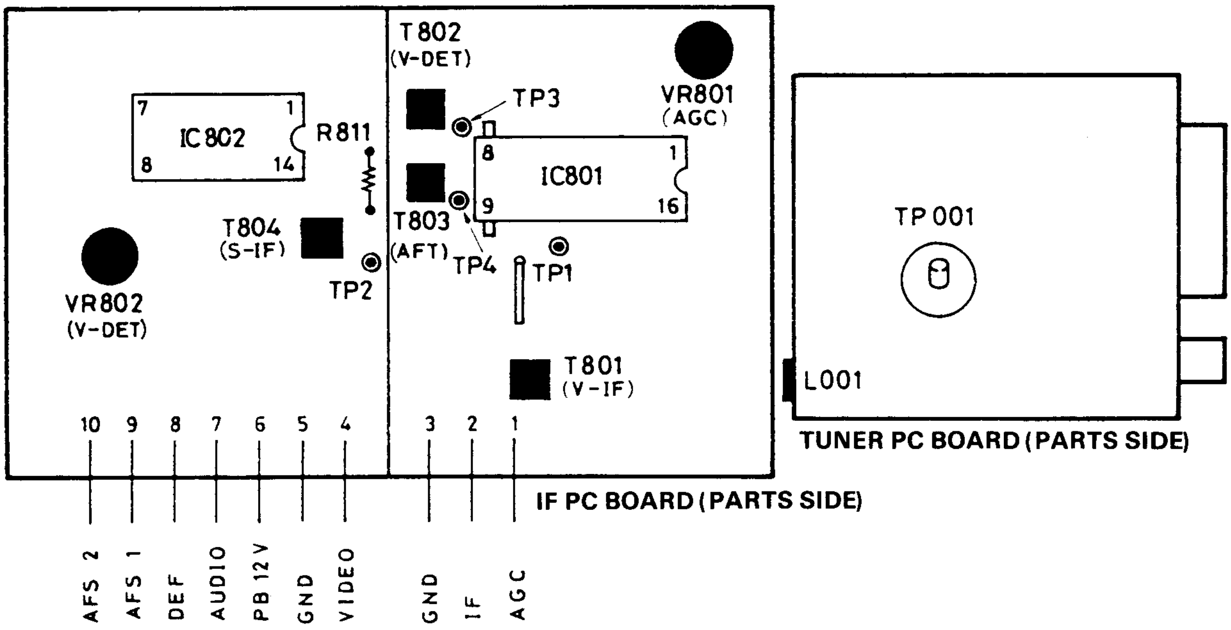
R810

Adjustment procedure

1) Tune the tuner module for best reception by observing the picture on the screen.
2) Close the channel preset cover. (AFS switch: ON)
3) Measure the voltage at the AGC terminal of tuner pack-pin 4 and adjust R810 so that the voltage is 9.2V ± 0.1V.

TUNER/IF CIRCUIT ADJUSTMENT (Except for BS Model)

Adjust the tuner/IF section after removing the top cover and the shield cover of the IF section.


T802
(V-DET)
TP3
VR801
(AGC)
IC802
7
1
8
14
R811
8
1
IC801
9
16
T804
(S-IF)
T803
(AFT)
TP4
TP1
TP2
VR802
(V-DET)
T801
(V-IF)
TP001
L001
10 9 8 7 6 5 4 3 2 1
AFS 2
AFS 1
DEF
AUDIO
PB 12 V
GND
VIDEO
GND
IF
AGC
TUNER PC BOARD (PARTS SIDE)
IF PC BOARD (PARTS SIDE)

1. V-IF Adjustment

Connecting test equipment

1) Connect the output of the TV-IF signal generator (markers, 31.9 MHz, 33.40 MHz, 34.47 MHz, 38.9 MHz, 40.4 MHz) to the IF input pins (2) and (3) (GND) of the IF circuit via the coupling circuit shown in Fig. 20.
2) Connect a resistor (50Ω) between TP3 and TP4, and then connect the oscilloscope to TP3.

State of VTR

EE mode

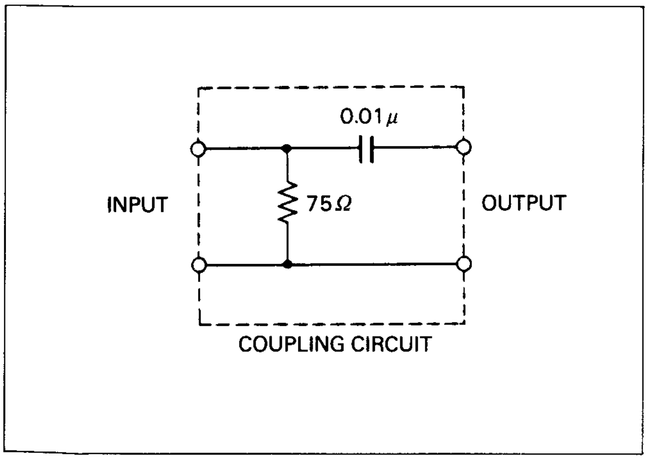

0.01μ
INPUT
75Ω
OUTPUT
COUPLING CIRCUIT

Fig. 20 Coupling Circuit

Postion to be adjusted

T801

Adjustment procedure

1) Adjust T801 so that the characteristics shown in Fig. 21 are obtained with sensitivity of the oscilloscope at max, and output of the TV-IF signal generator at the minimum required level.
2) Remove the resistor (50Ω) described in item (2) of "Connecting test equipment", after adjustment is completed.

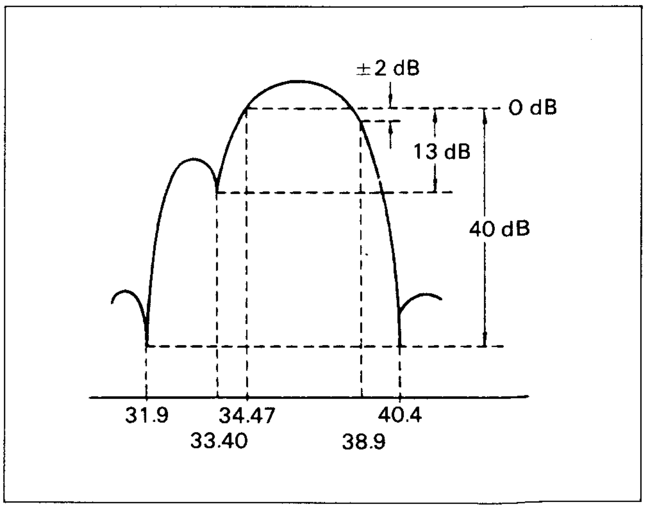


Fig. 21 Waveform of Video Output

2. V-DET Adjustment

Connecting test equipment

1) Connect the output of the TV-IF signal generator (markers, 38.9 MHz, 34.47 MHz) to the IF input pins 2 and 3 (GND) of the IF circuit.
2) Connect the output (DC6 ~ 12V) of the DC power generator to the test point terminal TP1.
3) Connect the oscilloscope to R811 (T804 side) of the IF circuit.

State of VTR

EE mode.

Position to be adjusted

T802, VR802.

Adjustment procedure

1) Adjust the output of the 38.9 MHz oscillator so that the input level of the IF input pin is 90 dBμ.
2) Set the oscilloscope to the DC mode and adjust the output voltage of the DC power generator so that the value (V_1) is – 1.5V.
3) Adjust T802 so that V_1 is max. When V_1 is set to −1.5V ± 0.2V or more, readjust the output voltage of the DC power generator described in "Adjustment procedure (1)".
4) Adjust T802 so that the output of V_1 is max. and then set the oscilloscope to the "AC" mode. Adjust the output of the TV signal generator so waveform A shown in Fig. 22 is 1.2 Vp-p.
5) Check that the outputs at the 34.47 MHz and 38.9 MHz sections of the waveform are the same (B = C). Readjust V-IF (shown in item 1) when the outputs are very different.
6) Connect the oscilloscope to the video output pin (4) of the IF circuit. Adjust VR802 so that waveform A shown in Fig. 22 is 1.0 Vp-p.

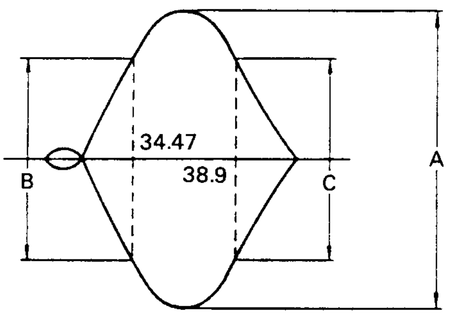


Fig. 22 V-DET

3. AFS Adjustment

Connecting test equipment

1) Connect the output of the 38.9 MHz oscillator to the IF input pins (2) and (3) (GND) of the IF circuit via the coupling circuit shown in Fig. 23.
2) Connect the oscilloscope to the IFT output pins (9) and (10) of the IF circuit.

Ste of VTR

EE mode.

Position to be adjustd

T803

Adjustment procedure

1) Adjust the output of the 38.9 MHz oscillator so that the input level of the IF input pins (2) and (3) is 90 dBμ.
2) Set the oscilloscope to the "DC" mode and adjust T803 so that the potential difference between the IFT output pins (9) and (10) is not present.

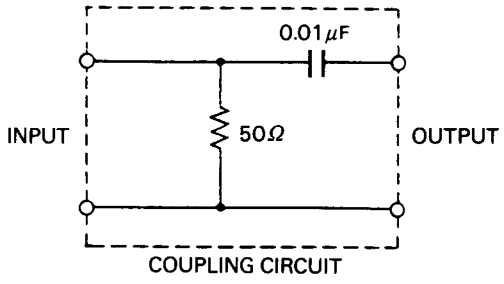


Fig. 23 AFS

4. SIF Adjustment

Connecting test equipment

1) Connect a UHF or VHF AERIAL output to the VTR AERIAL input terminals.
2) Connect a TV set to the VTR.

State of VTR

EE mode.

Position to be adjusted

T804

Adjustment procedure

1) Set the AFS switch to ON.
2) Adjust T804 so that audio distortion is minimum and output is max.

5. PIF Adjustment

Connecting test equipment

1) Connect the output of the TV signal generator to the VTR AERIAL input terminals and tune the set.
2) Connect the oscilloscope to the video output pin (4) of the IF circuit.

State of VTR

EE mode.

Position to be adjusted

L001

Adjustment procedure

1) Adjust L001 so that the characteristics shown in Fig. 24 can be obtained with sensitivity of the oscilloscope set to max, and output of the TV signal generator set to the min. required output.

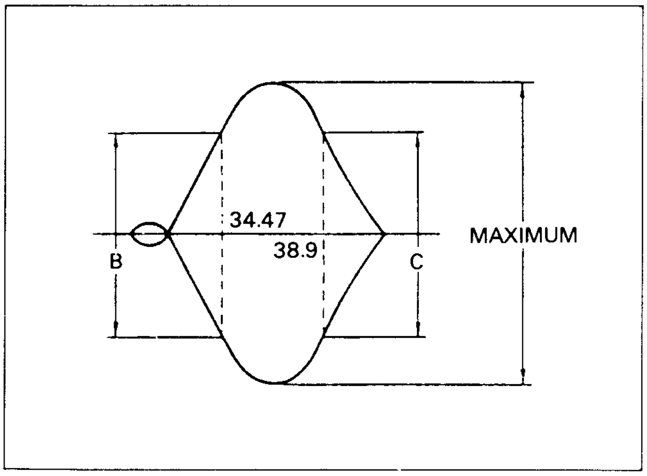


Fig. 24 PIF

6. Video Output Level Adjustment

Connecting test equipment

1) Connect the output of the TV signal generator to the VTR AERIAL terminals, and tune the set.
2) Connect the oscilloscope to the video output pins (4) and (5) (GND) of the IF circuit.

State of VTR

EE mode.

Position to be adjusted

VR802

Adjustment procedure

1) Adjust the output of TV signal generator so that the output voltage at the test point terminal TP001 of the tuner is 80 dBμ.
2) Set the modulation signal of the TV signal generator to COLOUR BAR with modulation 87.5%.
3) Adjust VR802 so that the output waveform of the oscilloscope is 0.95V ±0.03V.

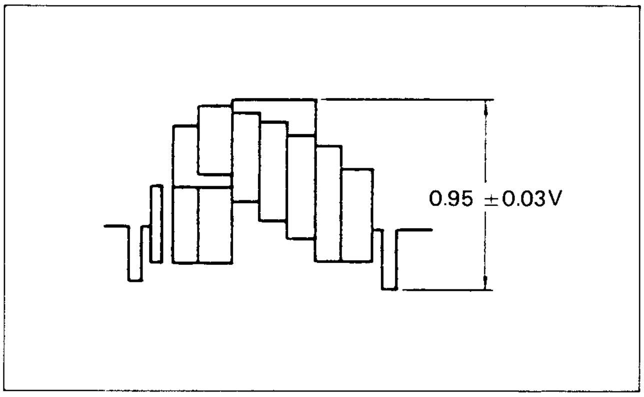


Fig. 25 Video Output Level

7. AGC Adjustment

Connecting test equipment

1) Connect the output of the signal generator to the VHF AERIAL terminals via the coupling circuit.
2) Connect the VTVM between pins 9 and 10 of IC801 in the IF circuit.

State of VTR

EE mode.

Position to be adjusted

VR801

Adjustment procedure

1) Set the output signal of the signal generator to 203.25 MHz, 69 dBμ. (75Ω open)
2) Set the tuning VR of the VTR so that the reading of the VTVM is 0V (potential difference between pin 9 and 10 of the IV circuit).
3) Connect the VTVM to the AGC output pin (1) in the IF circuit. Adjust VR401A so that the value at that time is 6.0 ±0.5V.

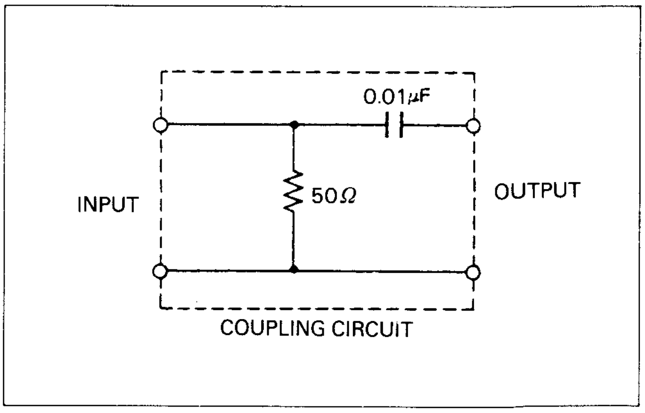
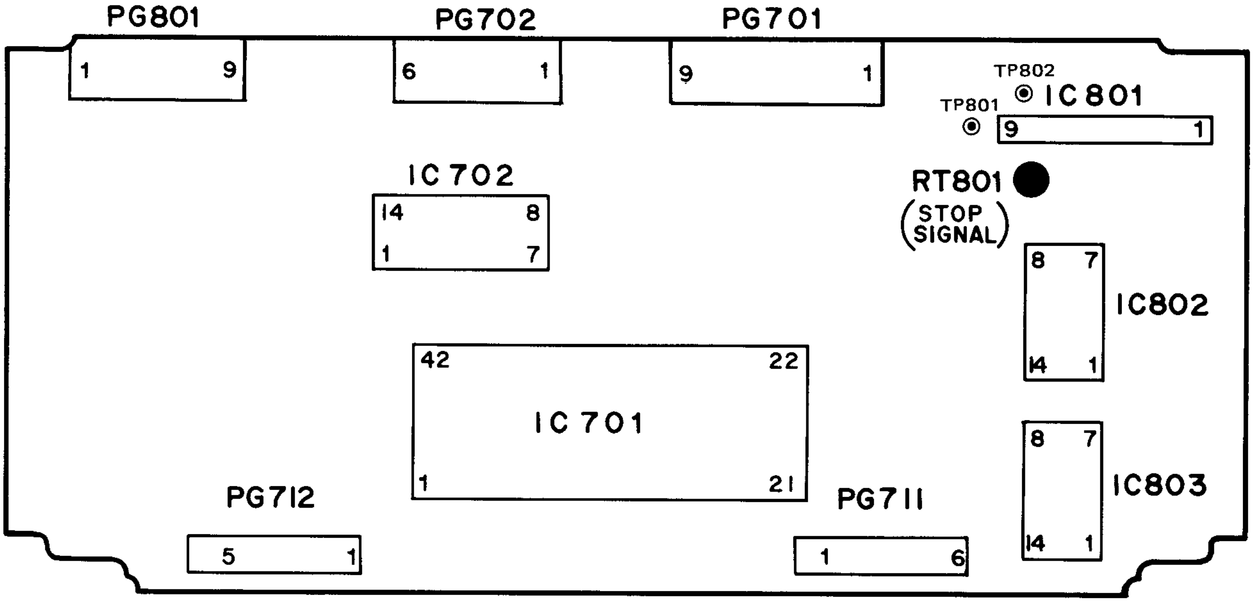


Fig. 26 AGC

V·S TUNING CIRCUIT ADJUSTMENT (V·S Tuning P.C. Board)

Parts locations


PG801
1
9
PG702
6
1
PG701
9
1
TP802
TP801
IC801
9
1
IC702
14
8
1
7
RT801
(STOP SIGNAL)
8
7
IC802
14
1
42
22
IC701
1
21
PG712
PG711
8
7
IC803
14
1
5
1
1
6

V·S Tuning P.C. Board (PARTS SIDE)

1. Stop signal adjustemnt

Perform this adjustment to set so that the H-sync signal 15.625 kHz can be osillated precisely.

Connecting test equipment

Connect the frequency counter to TP802.

Position to be adjusted

RT801

Adjustment procedure

Adjust RT801 so that the reading of the frequency counter is 15.625kHz ±50 kHz.

MEMO

MECHANICAL ADJUSTMENT

1. Mechanism State Switch Adjustment

This switch is positioned near the loading gear at the bottom of the chassis, it detects the loading condition of the mechanism and controls the loading motor.
When this switch is not installed properly, loading is not done correctly and the mechanism does not operate noramally.

1) Turn the worm pulley counterclockwise by hand until just before the resistance becomes great. The top of the rhomboid groove in the drive gear should be seen within 1.3 mm from end A. (This is the STOP mode position.)
2) Loosen the mechanism state switch fixing screw to slide the switch.
3) Tighten the screw at the position with the V groove showing the STOP mode and the triangular hole in the switch knob match. (Error: +0.15 mm in the loading direction and +0.25 mm in the unloading direction. Perform adjustment while viewing from just above.)

Operation check

Check operations after installation and adjustment.

1) Turn the worm pulley clockwise and check that the triangular hole matches the 5th V groove from the STOP mode position when the worm pulley is turned fully, and then turn the worm pulley counterclockwise and check that the STOP mode V groove and the triangular hole match when the worm pulley is turned fully.
2) Load a blank tape to do all operations and check that loading/unloading operations are performed correctly.

The above operations are not performed, adjust the switch again.

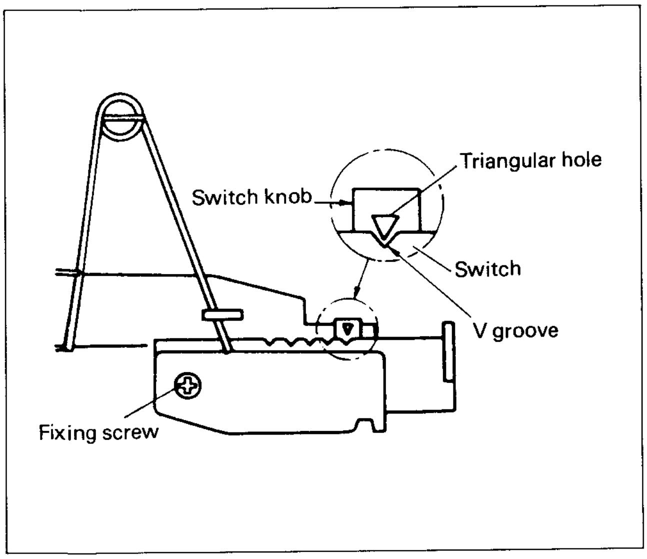


Fig. 27 Mechanism State Switch

2. Tape Transport Parts Check/Adjustment

The tape transport system is the system that moves the tape from the supply reel to the take-up reel via the video head. The transport system parts, especially the parts which directly come into contact with the tape should be kept in a clean condition in which contact surfaces are not scratched, with no dust and oil, etc. adhering to them.
The tape transport system has been adjusted in the factory before shipment, so when the transport system parts are replaced, be sure to adjust the new parts to stabilize the tape transport system.
Do not loosen the fixing screws of the parts shown below. When it is required to replace them be sure to install them to the same positions as before.

1) **Both supply/take-up catchers**
2) **Both supply/take-up inclined guide**

1. Reel disk height adjustment

1) Remove the top cover and cassette lid, place the master plane on the cassette holder and lower the holder.
2) Place a right-angle gauge on the master plane and fit it to the reel disk.
3) Check that the top of the reel disk is positioned between sections A and B of the right-angle gauge.
4) When the top of the reel disk is not between sections A and B, adjust the numbers of spacers at the bottom of the reel disk (thickness: 0.5 mm)

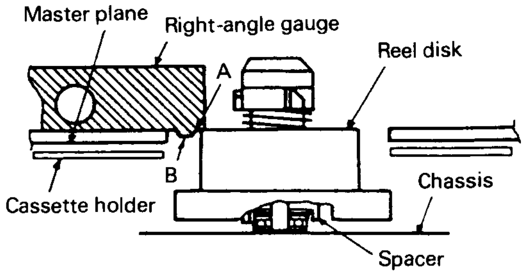


Fig. 28 Reel Disk

2. Tension pole position/tension adjustment

Adjust the tension pole position and tension, and confirm the position and tension.

Remove the top cover and cassette lid before adjustment.

Position adjustment

1) Cover the light-receiving port of the supply end sensor using paper, etc.
2) Press the play button without inserting a cassette to place the VTR in the loading mode.
3) Loosen the tension band bracket fixing screw, and put a flat tip screwdriver in the groove between the bracket and chassis.
4) Slide the tension band bracket with the screwdriver and set the spacing between the tension pole and chassis to 1 ~ 2 mm.
5) Tighten the bracket fixing screw.
6) Perform the loading operation without inserting a cassette after adjustment to check the tension pole position again.

Tension adjustment

1) Loosen the spring holder fixing screw.
2) Load the tension cassette and play it back in the SP mode.
3) Fit a flat head screwdriver to the spring holder and slide the holder.
4) Adjust the tension so that the reading of the meter is 30 ~ 45 g-cm.
5) Set the VTR to the STOP mode and tighten the screw.
6) Check the tension pole position again when the tension is changed greatly (by 5 g-cm or more). When it is drifted, readjust the tension pole position and tension.
7) Remove the cover from the sensor after adjustment.

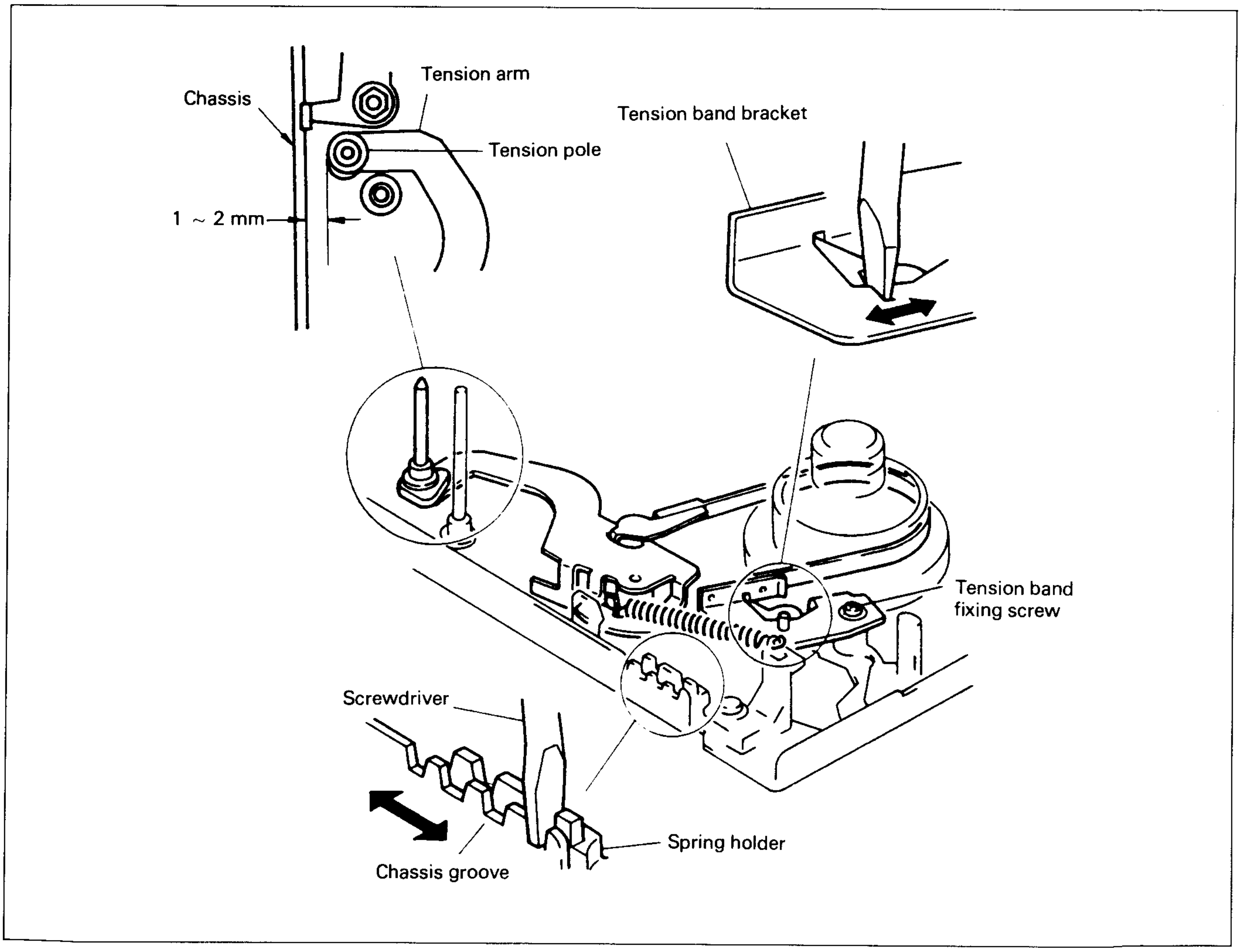


Fig. 29 Tension pole/tension band

3. Guide pole height adjustment

1) Remove the top cover and cassette lid, place the master plane on the cassette holder and lower the holder.
2) Place the right-angle gauge on the master plane and fit it to the guide pole.
3) Turn the guide pole height adjustment nut to adjust so that the gap between the upper flange of the guide pole and the top of the jig is 0 to 0.2 mm.
4) Load a blank tape and run it to check that the tape does not ride over the top/bottom flanges.
5) When it rides over either flange, adjust the guide pole height. When the tape rides over the upper flange, turn the nut counterclockwise, and when the tape rides over the lower flange, turn the nut clockwise to lift or lower the guide pole.

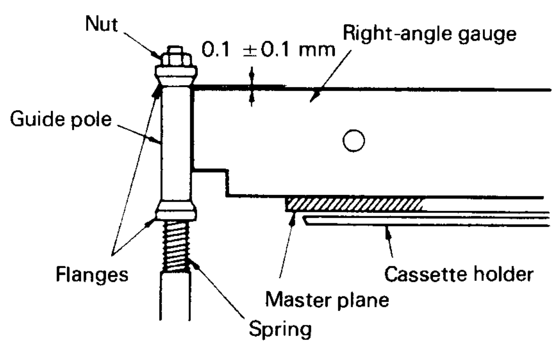


Fig. 30 Guide pole

4. Guide roller height adjustment

1) Remove the top cover and cassette lid, place the master plane on the cassette holder and lower the holder. Place the right-angle gauge on the master plane to fit it to the guide roller.
2) Tighten the guide roller fixing screw at the position where the upper flange of the guide roller and the top of the jig match.
3) Run the tape to check that the tape is not curled and does not rise, and then perform electrical adjustment.
4) Connect an oscilloscope to TP201 (FM output) on the Y/Chroma PC Board.
5) play back the colour bar test tape and set the tracking control to its click position.
6) Check that the FM waveform is flat.
7) Then, check that the FM drop at the leading and trailing edges are same when tracking control is turned to the left and right.
8) When it is not, loosen the guide roller fixing screw, turn the guide roller a little to the left and right to make it flat.
9) Tighten the fixing screw.

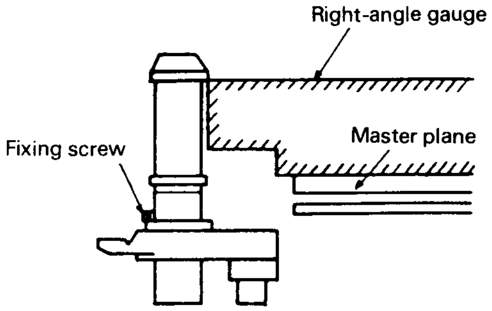
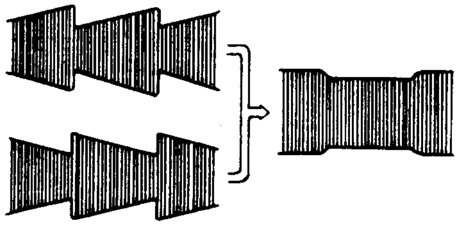
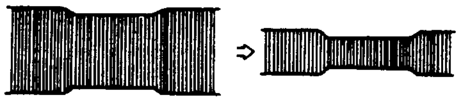


Fig. 31 Guide Roller



Turn the guide roller a little to the left and right to make it flat.

TP201 (FM output)



Tracking center

Turn the tracking control to the left and right.

Fig. 32 FM Output

5. A/C head adjustment

With A/C head adjustment, the height, tilt and azimuth are adjusted before adjusting the X valuve; adjust the former 3 items repeatedly to determine the best A/C head installation position and then adjust the X value. The following shows the adjustment procedure when the A/C head is replaced. Be sure to perform coarse adjustment before precise adjustment.

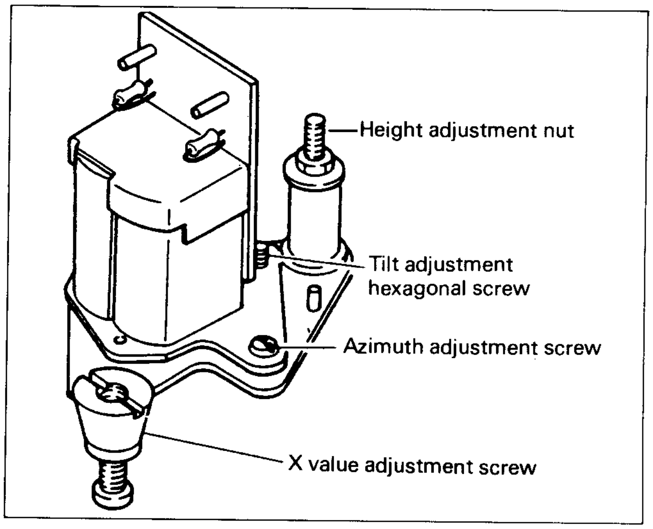

Height adjustment nut
Tilt adjustment hexagonal screw
Azimuth adjustment screw
X value adjustment screw

Fig. 33 A/C Head

Coarse adjustment

1) Tighten the A/C head fixing screw through the bottom of the head base (2) via the spring so that the top of the fixing screw comes out approx. 3 ~ 4 mm above the top of the head base (1). (Refer to Fig. 34.)
2) Adjust the tilt adjustment hexagonal screw and azimuth adjustment screw so that head base (1) is parallel with head base (2). (Refer to Fig. 34)
3) Place the master plane on the cassette holder and lower the cassette holder.
4) Adjust the height adjustment nut so that the gap between the right-angle gauge and the shield case of the A/C head is approx. 0.5 mm when the right-angle guage is placed on the master plane and it is brought near to the A/C head. (Refer to Fig. 35.)
5) Remove the adjustment jigs, load a blank tape and set the VTR to the play mode. Check that extreme curling or rising does not occur near the A/C head at this time. When it happens, adjust the tile adjustment hexagonal screw, azimuth adjustment screw and the height adjustment nut again. With the best A/C head height, the bottom end of the tape is approx. 0.3 mm from the bottom of the control head core. (Refer to Fig. 36)

Precise adjustment

6) Connect the L ch audio output and CH-1 of the oscilloscope, and connect the R ch audio output and CH-2.
7) Adjust playback level controls RT401 L, R described in the audio circuit adjustment for the maximum outputs.
8) Play back the audio 7 kHz signal on the alignment tape. Turn the adjustment screws for the tilt, azimuth and the AC head height alternately so the audio outputs from the both channels shown in Fig. 37 are maximum and the envelopes are flat and stable.
   When the audio output levels from the two channels differ, adjust the level to their average value.
9) Confirm that the phases of both channels match.
10) Perform the playback level adjustment described in the audio circuit adjustment.

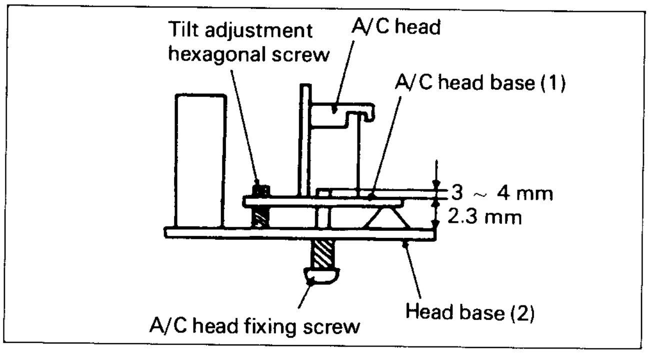

Tilt adjustment hexagonal screw
A/C head
A/C head base (1)
3 ~ 4 mm
2.3 mm
A/C head fixing screw
Head base (2)

Fig. 34 Azimuth/Tilt Adjustments

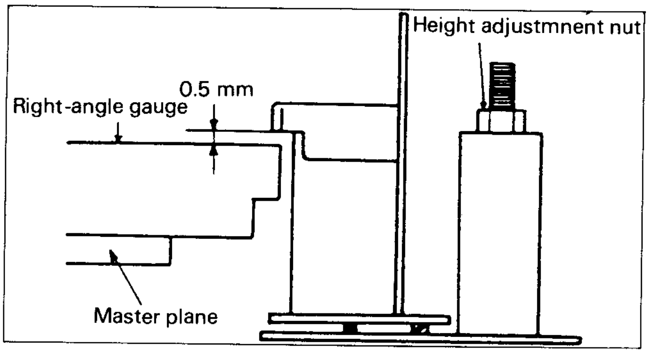

Height adjustmnent nut
0.5 mm
Right-angle gauge
Master plane

Fig. 35 Height Adjustment

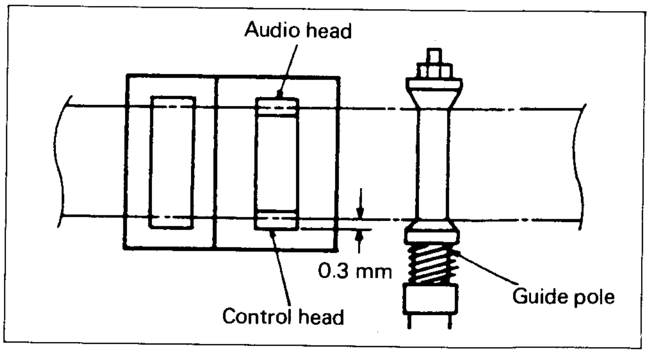

Audio head
0.3 mm
Guide pole
Control head

Fig. 36 Height Adjustment

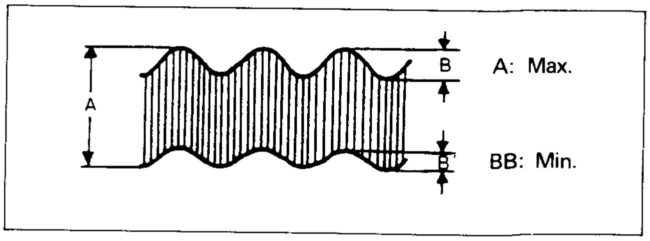

A
B
A: Max.
B
BB: Min.

Fig. 37 Audio output

X value adjustment

11) Connect the oscilloscope to the FM output pin (TP201) of the Y/Chroma PC Board.
12) Set the tracking control to its center click position and adjust the X value adjusting screw so that the peak-to-peak value of the FM envelope is maximum.
    Fig. 38 shows the variation characteristics of the peak-to-peak value of the FM envelope with respect to the turning of the tracking control when the X value is optimized using an alignment tape.
13) Check item 10 again.
14) Apply locking paint to the tilt adjusting screw, azimuth adjusting screw, AC head height adjusting nut and X value adjusting screws.
15) Adjust the play output and recording bias level as described in "Circuit adjustment".

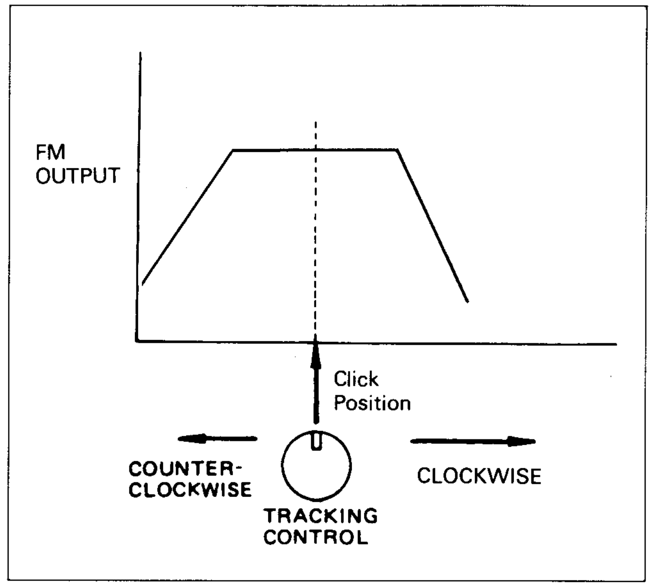


Fig. 38 X Value

6. Adjustment after replacing the cylinder (video heads)

When the cylinder is replaced, the relative height of the guide roller and the X value, etc. are drifted, so it is required to adjust the transport system and servo system.
However, when the cylinder has been replaced correctly, the drifts of the relative height and X value are very small, so it can be corrected by the electrical adjustment.

1) Check the curling or creasing of the tape does not occur near the guide roller.
   Adjust the height of the guide roller when they occur.
2) Adjust the X value. (Refer to the item "A/C head adjustment".)
3) Check the flatness and level fluctuation of the FM output. The method to check this is described later.
4) Adjust the servo circuit and luminance/chroma circuit.
   - **Switching point adjustment (Servo board)**
   - **Tracking preset adjustment (Servo board)**
   - **Record luminance/chroma level adjustment**

3. Checking Tension/Torque

Checking the tension torque and compression strength at the tape take-up section and the movable section is important to smooth the tape transport and to satisfy the basic performance of the VTR.
When the tape transport is not smooth or when any abnormalities occur in the tape speed, the faulty section is detected by this check, replace it with good one then perform checking again to complete this job.

Item	VTR operation mode	Measured reel	Measurement value	Remarks
Pressure roller compression strength	PLAY-PAUSE	———	1.2 ± 0.2 kg	Note 1
Main brake torque	STOP	Supply & take-up reels	170 g-cm or more	Note 2
Slack removal torque	UNLOADING	Supply reel	200 ~ 300 g.cm	Note 2
F. FWD & Rewind torque	FAST-FORWARD & REWIND	Take-up & Supply reel	400 g.cm or more	Note 2
Play & Back tension torque	PLAY	Supply reel	26 ~ 32 g.cm	
Take-up torque	PLAY	Take-up reel	100 ~ 150 g.cm	Note 2
Supply & take-up reels Back tension torque	F. FWD	Supply reel	4 ~ 15 g.cm	Note 3
	RWEIND	Take-up reel		

Note 1

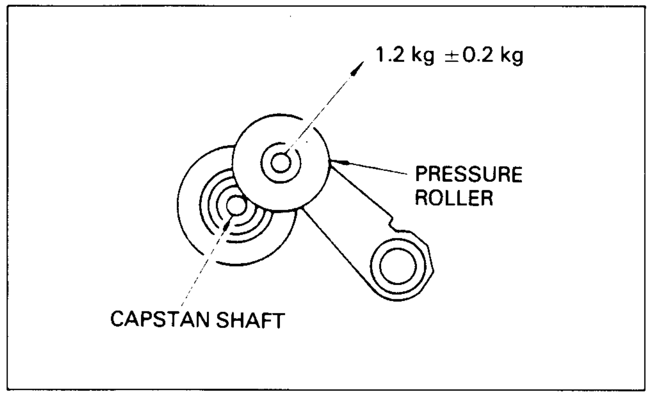


Fig. 39 Pressure Roller Compression Strength

Note 2: The value measured while sliding the torque gauge at the speed of 0.8 rps using the torque gauge and the torque gauge adaptor.
However, the main brake torque shows the value when measured while turning the take-up reel clockwise and the supply reel, counterclockwise by hand at the speed of 0.8 rps.

Note 3: The value measured while drawing the take-up reel disk counterclockwise and the supply reel disk counterclockwise and the supply reel disk, clockwise at the speed of 50 mm/s using the dummy reel and fan type tension gauge.

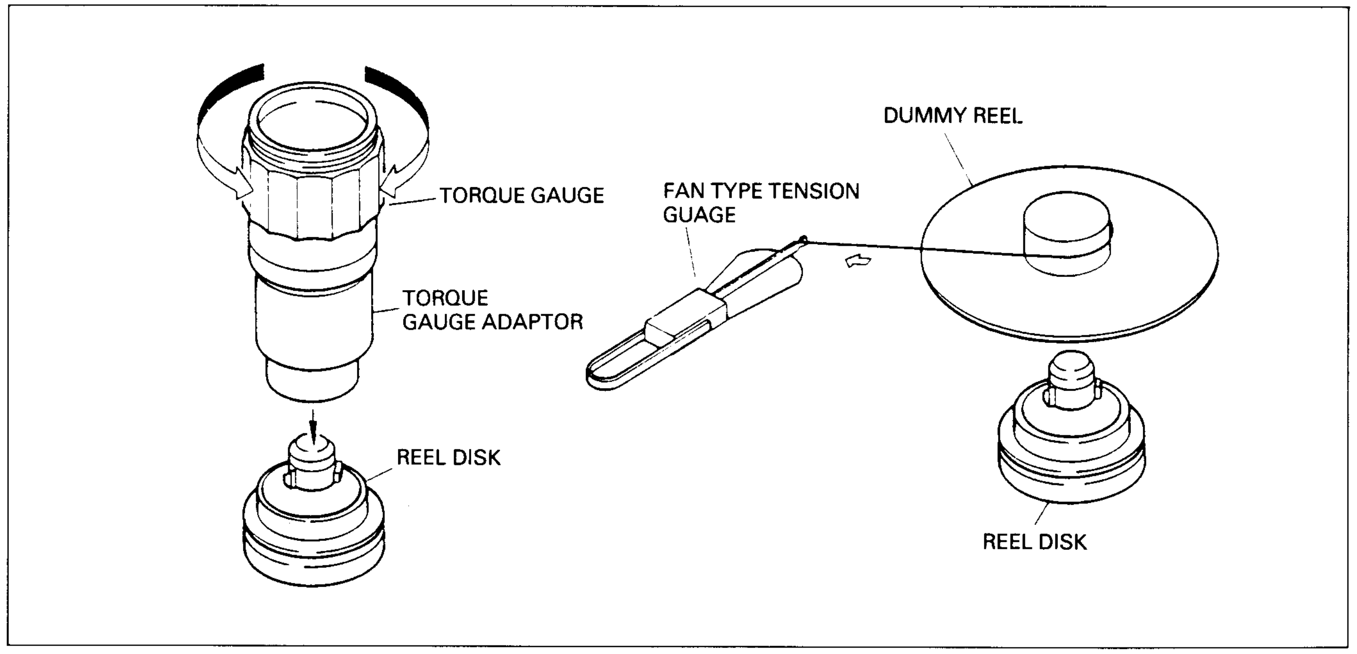
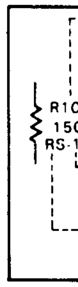


Fig. 40 Tension/Torque Measurement

Note

1 Vol
vol

2 No



C1C
To 00
+C1C
16V

3 Be
cap
4 Wh
spe
tem

Cautio

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foa
lead
foa
foa
cha
rol

1. AM
Wh
C2(
boa

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section is
e then per-

Item	VTR operation mode	Measured reel	Measurement value	Remarks
Pressure roller compression strength	PLAY-PAUSE	———	1.2 ± 0.2 kg	Note 1
Main brake torque	STOP	Supply & take-up reels	170 g-cm or more	Note 2
Slack removal torque	UNLOADING	Supply reel	200 ~ 300 g.cm	Note 2
F. FWD & Rewind torque	FAST-FORWARD & REWIND	Take-up & Supply reel	400 g.cm or more	Note 2
Play & Back tension torque	PLAY	Supply reel	26 ~ 32 g.cm	
Take-up torque	PLAY	Take-up reel	100 ~ 150 g.cm	Note 2
Supply & take-up reels Back tension torque	F. FWD	Supply reel	4 ~ 15 g.cm	Note 3
	RWEIND	Take-up reel		

Note 1

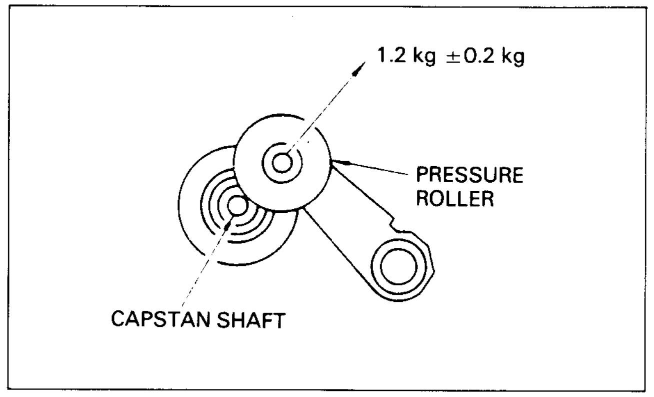


Fig. 39 Pressure Roller Compression Strength

Note 2: The value measured while sliding the torque gauge at the speed of 0.8 rps using the torque gauge and the torque gauge adaptor.
However, the main brake torque shows the value when measured while turning the take-up reel clockwise and the supply reel, counterclockwise by hand at the speed of 0.8 rps.

Note 3: The value measured while drawing the take-up reel disk counterclockwise and the supply reel disk counterclockwise and the supply reel disk, clockwise at the speed of 50 mm/s using the dummy reel and fan type tension gauge.

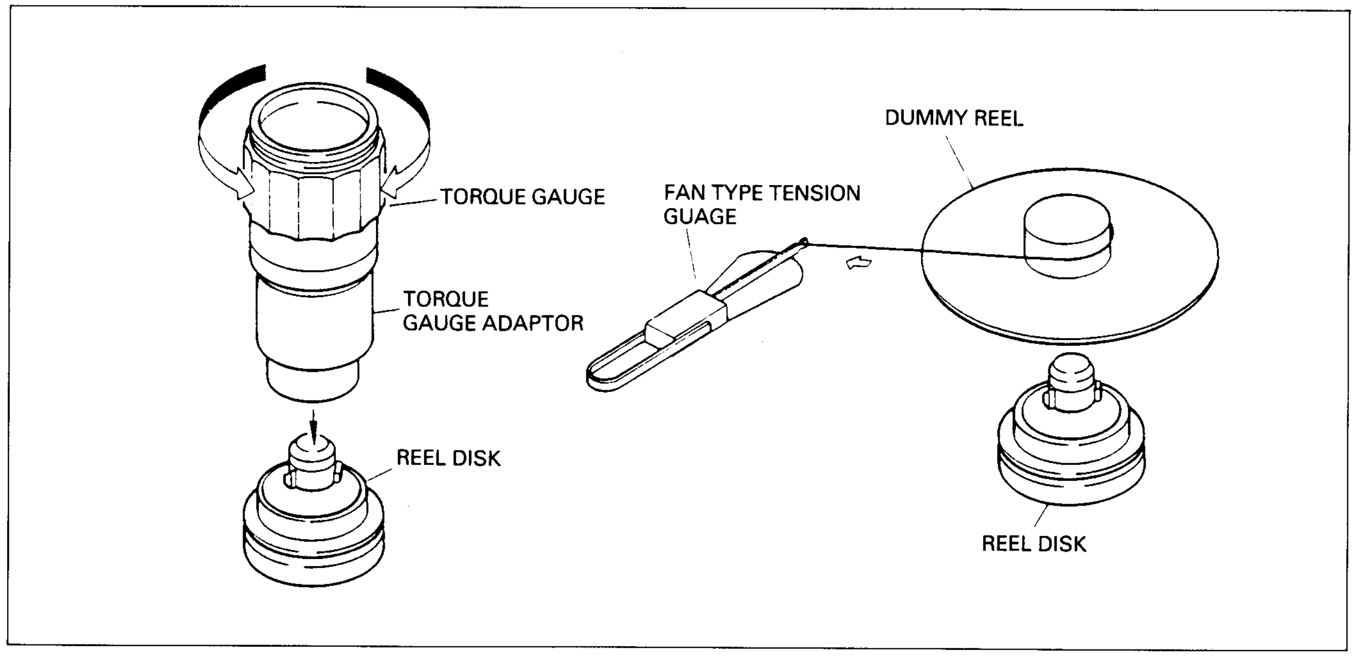


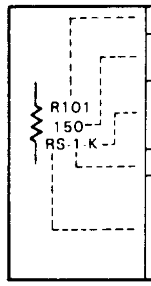
Fig. 40 Tension/Torque Measurement

SCHEMATIC/CIRCUIT BOARD DIAGRAMS

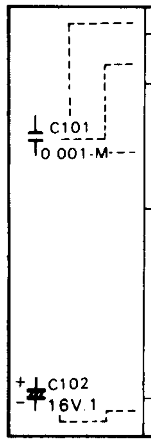
Note

1 Voltage measured at base of chassis with minimum volume control and no signal
( ) are shown in recording condition

2 Nomenclature of Resistors and Capacitors



	Circuit No.
Value	No indicated Ω (Ohm) M : 1000kΩ
Tolerance	No indicated ± 5% K : ± 10% M : ± 20%
Wattage	No indicated ¼ W
Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film



	Circuit No.	
Value	No indicated μF P : PF	
Tolerance	No indicated ± 10% J : ± 5% M : ± 20% Z : + 80%, − 20% D : ± 0.5pF C : ± 0.25pF	
Sort	⏊⏉	Ceramic
	+ ⏊⏉	Electrolitic
	M ⏊⏉	Mylar
	P ⏊⏉	Polyester
	S ⏊⏉	Styrol
Voltage	No indicated 50WV	

3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.

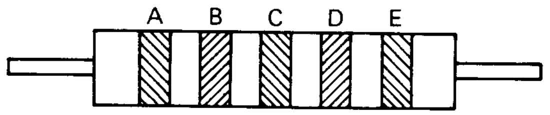
4 When replacing capacitors marked With ✱ use specified ones stated on parts list since required temperature characteristics.

Cautions on use of MOS IC

1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during soldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibres or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a workers should be grounded.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

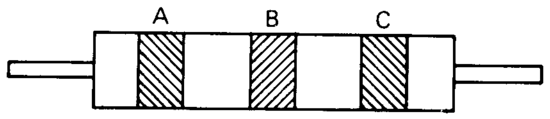
HOW TO READ CAPACITY AND INDUCTANCE OF RESISTOR SHAPE CAPACITORS AND COILS

CAPACITOR



CAPACITY: (10A + B) x C [pF]
TOLERANCE: D
RATED VOLTAGE: BODY COLOR
Pink: 25V
Green: 50V
CHARACTERISTICS: E

COIL



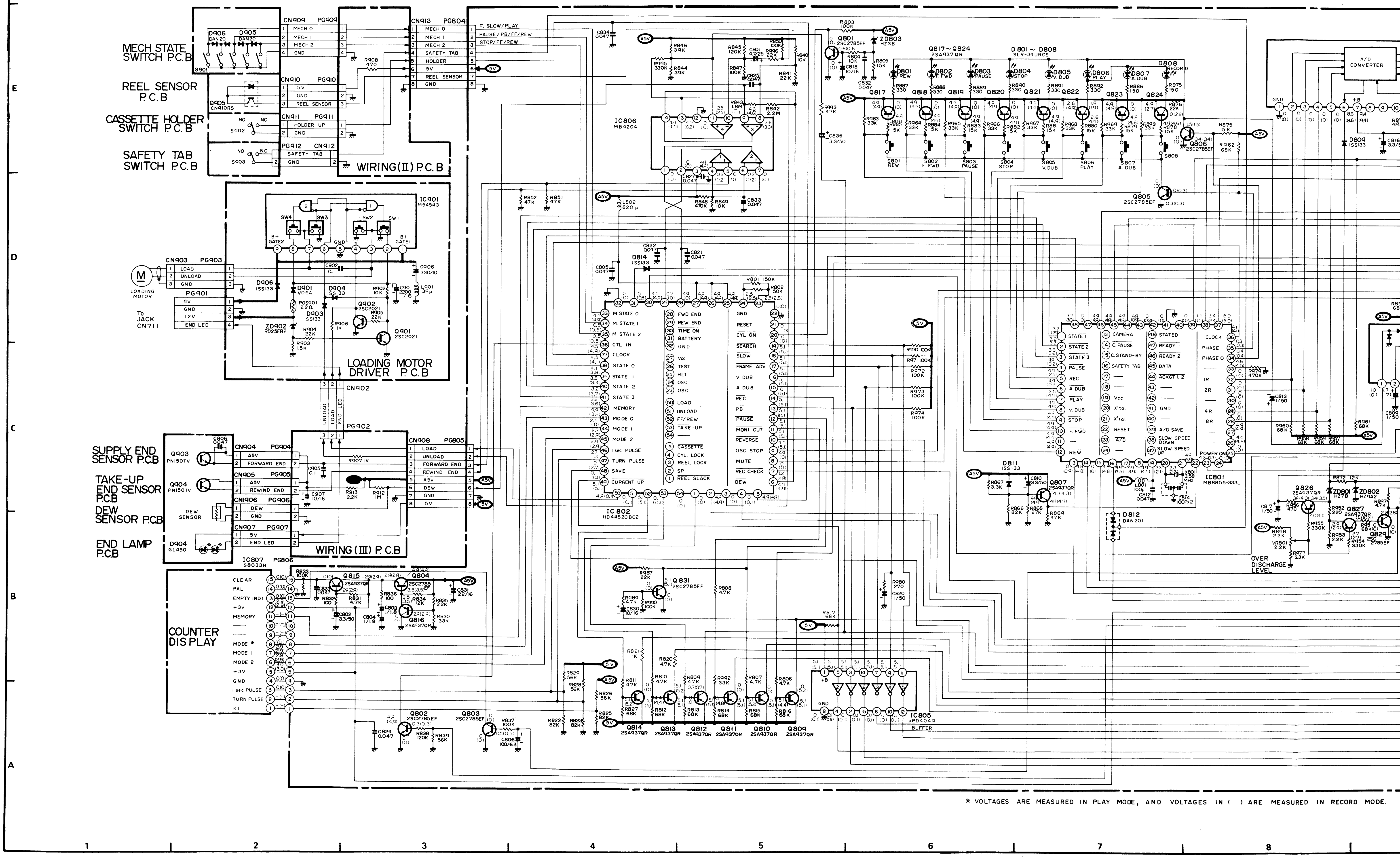
INDUCTANCE: (10A+B)xC [μH]

COLOR	A, B	C	D	E
Black	0	10^{0}	±20%	For temperature compensation
Brown	1	10^{1}		
Red	2	10^{2}		
Orange	3	10^{3}		
Yellow	4	10^{4}		
Green	5	10^{5}		
Blue	6			
Violet	7			
Grey	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{1}	± 5%	
Silver		10^{2}	±10%	High dielectric constant type

CAUTION

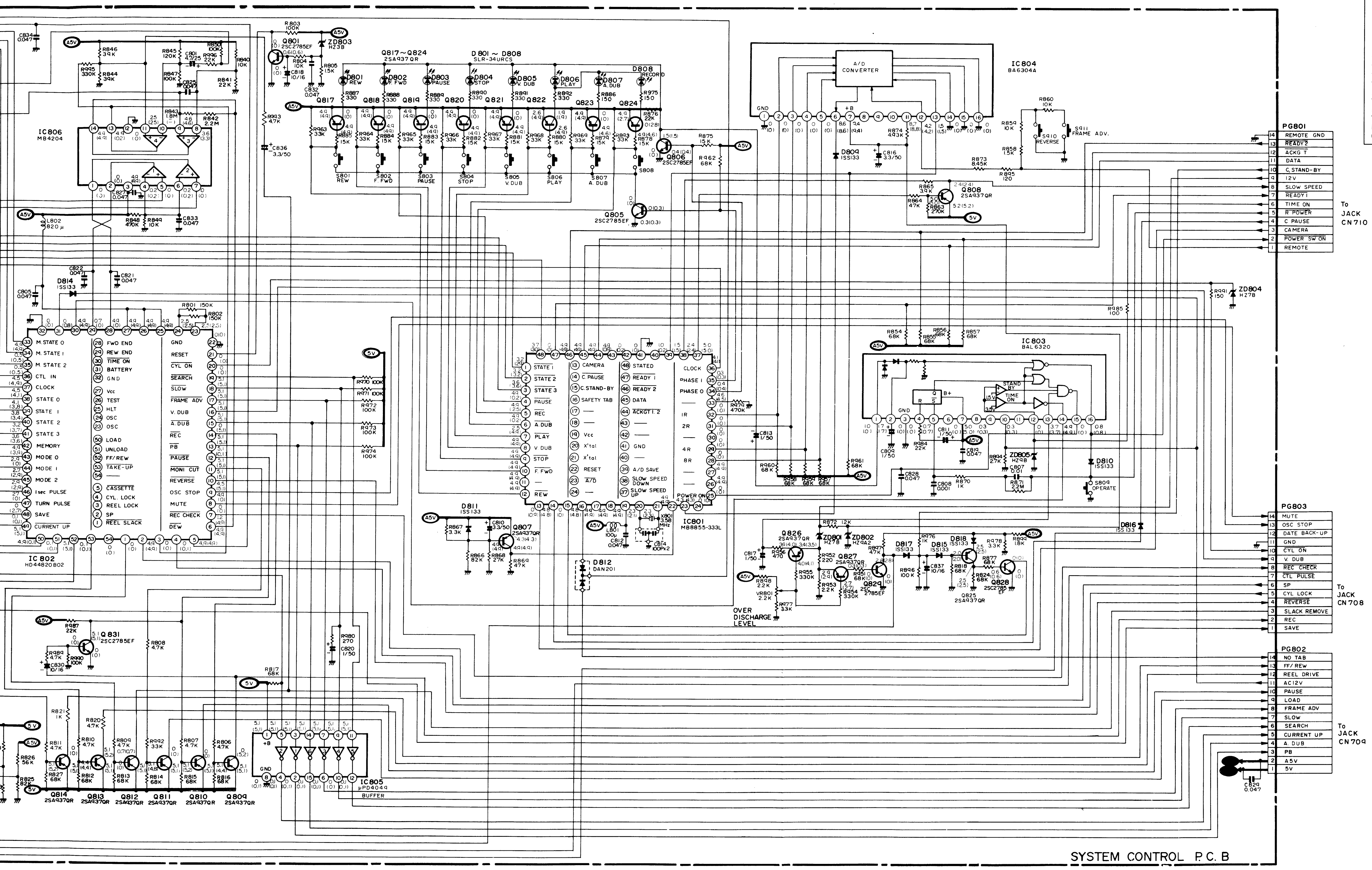
1. **AM Strong Signal Interference**
When a tape is played back in an area with strong AM radio signal, the picture may loose its color, Add L200 and C200 to the Y/CHROMA circuit board (section shown with broken lines in the schematic diagram and the circuit board diagram) and adjust L200 so that the AM interference is minimum, in such a case.

SYSTEM CONTROL

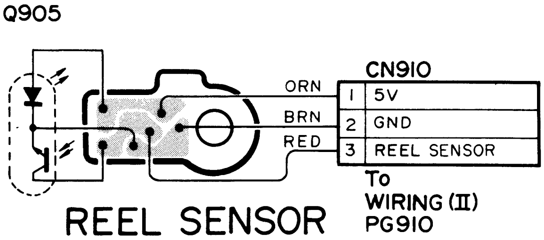

MECH STATE SWITCH P.C.B
REEL SENSOR P.C.B
CASSETTE HOLDER SWITCH P.C.B
SAFETY TAB SWITCH P.C.B
WIRING(II) P.C.B
LOADING MOTOR DRIVER P.C.B
LOADING MOTOR
To JACK CN711
SUPPLY END SENSOR P.C.B
TAKE-UP END SENSOR P.C.B
DEW SENSOR P.C.B
END LAMP P.C.B
WIRING(III) P.C.B
COUNTER DISPLAY
IC807 S8033H
IC901 M54543
IC806 MB4204
IC802 HD44820B02
IC801 MB8855-333L
IC805 μPD4049 BUFFER
A/D CONVERTER
Q817~Q824 2SA937QR
D801 ~ D808 SLR-34URCS
S801 REW
S802 F.FWD
S803 PAUSE
S804 STOP
S805 V.DUB
S806 PLAY
S807 A.DUB
S808
OVER DISCHARGE LEVEL
CN909 PG909
CN910 PG910
CN911 PG911
PG912 CN912
CN913 PG804
CN903 PG903
CN902
PG902
CN904 PG904
CN905 PG905
CN1906 PG906
CN907 PG907
CN908 PG805
PG806
F. SLOW/PLAY
PAUSE/PB/FF/REW
STOP/FF/REW
1
2
3
4
5
6
7
8
A
B
C
D
E

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

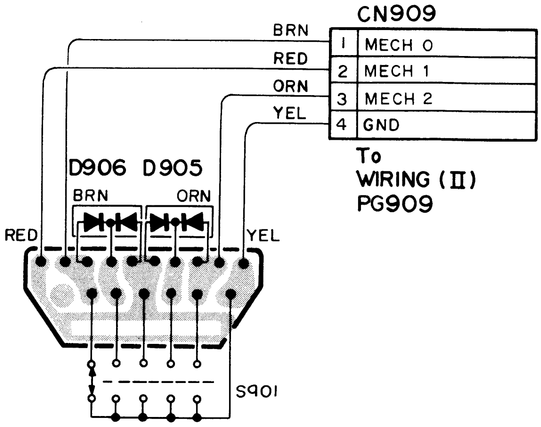
SCHEMATIC DIAGRAM PAGE
SYSTEM CONTROL 58
JACK 66
RF CONVERTER 69
REEL MOTOR 71
CAPSTAN MOTOR 72
SWITCHING REGULATOR 73
SERVO 77
Y/CHROMA 87
AUDIO 94
TUNER/IF (For BS) 98
TUNER/IF (Except for BS) 103
V·S TUNING 108
T1 114
S1 114
TIMER/INPUT KEY 116
REGULATOR 122
T2 129
REMORT CONTROL 130
(I-R TRANSMITTER)


SYSTEM CONTROL P.C.B
IC806 MB4204
IC802 HD44820B02
IC801 MB8855-333L
IC803 BAL6320
IC804 BA6304A
A/D CONVERTER
IC805 μPD4049 BUFFER
Q817～Q824 2SA937QR
D801～D808 SLR-34URCS
D801 REW
D802 F.FWD
D803 PAUSE
D804 STOP
D805 V.DUB
D806 PLAY
D807 A.DUB
D808 RECORD
S801 REW
S802 F.FWD
S803 PAUSE
S804 STOP
S805 V.DUB
S806 PLAY
S807 A.DUB
S808
S809 OPERATE
S910 REVERSE
S911 FRAME ADV.
OVER DISCHARGE LEVEL
PG801
14 REMOTE GND
13 READY 2
12 ACKG T
11 DATA
10 C. STAND-BY
9 12V
8 SLOW SPEED
7 READY 1
6 TIME ON
5 R. POWER
4 C. PAUSE
3 CAMERA
2 POWER SW ON
1 REMOTE
To JACK CN710
PG803
14 MUTE
13 OSC STOP
12 DATE BACK-UP
11 GND
10 CYL ON
9 V. DUB
8 REC CHECK
7 CTL PULSE
6 SP
5 CYL LOCK
4 REVERSE
3 SLACK REMOVE
2 REC
1 SAVE
To JACK CN708
PG802
14 NO TAB
13 FF/REW
12 REEL DRIVE
11 AC12V
10 PAUSE
9 LOAD
8 FRAME ADV
7 SLOW
6 SEARCH
5 CURRENT UP
4 A. DUB
3 PB
2 A5V
1 5V
To JACK CN709
A5V
5V
4
5
6
7
8
9
10
11
12

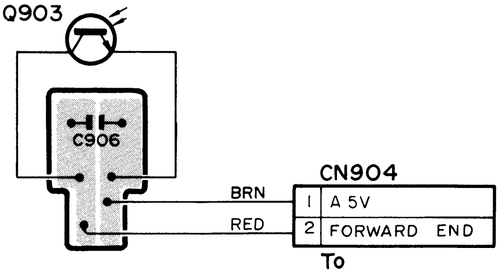
※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


Q905
ORN
BRN
RED
CN910
1 5V
2 GND
3 REEL SENSOR
To
WIRING (II)
PG910

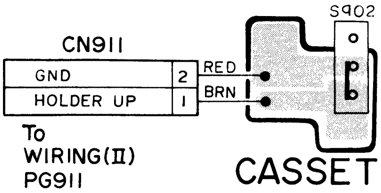
REEL SENSOR P.C.B


CN909
BRN
RED
ORN
YEL
1 MECH 0
2 MECH 1
3 MECH 2
4 GND
To
WIRING (II)
PG909
D906 D905
BRN
ORN
RED
YEL
S901

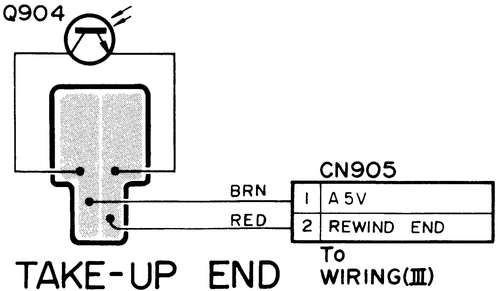
MECH. STATE SWITCH P.C.B


Q903
C906
BRN
RED
CN904
1 A 5V
2 FORWARD END
To
WIRING (III)
PG904

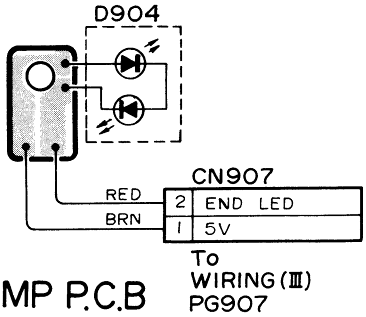
SUPPLY END SENSOR P.C.B


S902
CN911
2 GND
1 HOLDER UP
RED
BRN
To
WIRING (II)
PG911

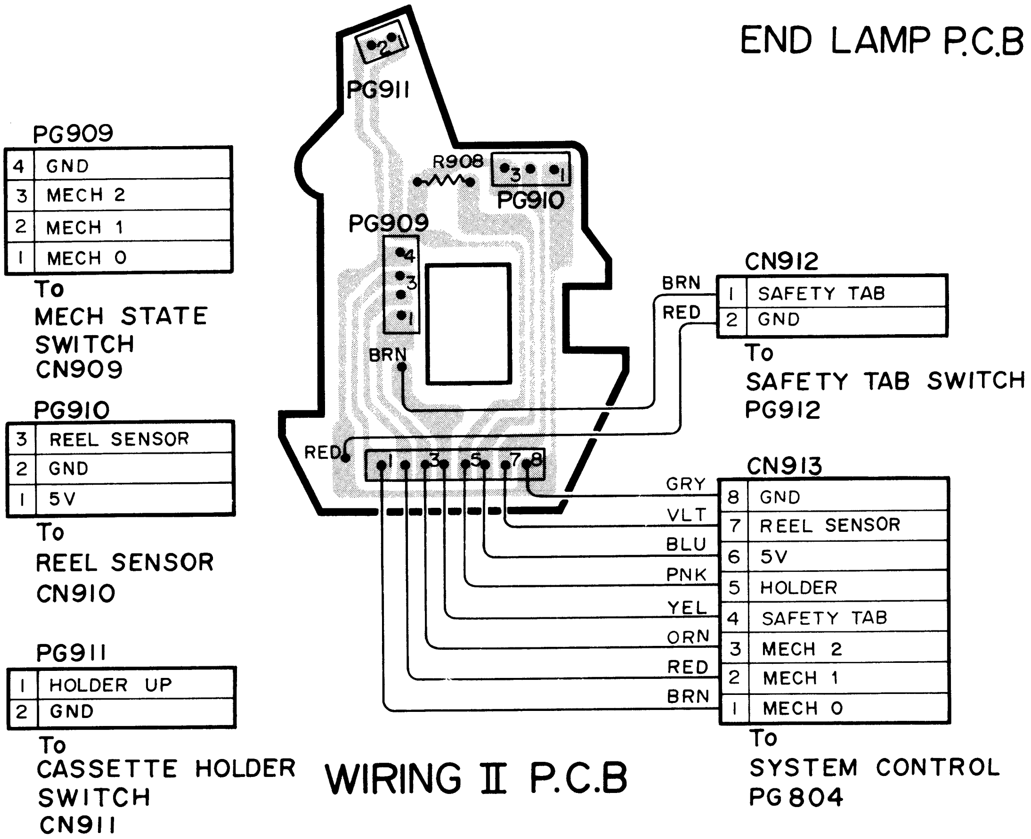
CASSETTE HOLDER P.C.B


Q904
BRN
RED
CN905
1 A 5V
2 REWIND END
To
WIRING (III)
PG905

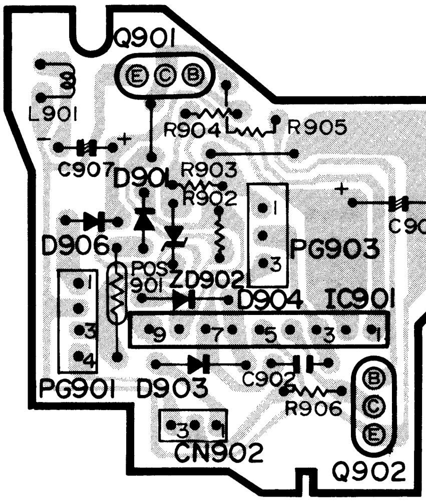
TAKE-UP END SENSOR P.C.B


D904
RED
BRN
CN907
2 END LED
1 5V
To
WIRING (III)
PG907

END LAMP P.C.B


PG911
R908
PG910
PG909
PG909
4 GND
3 MECH 2
2 MECH 1
1 MECH 0
To
MECH STATE
SWITCH
CN909
PG910
3 REEL SENSOR
2 GND
1 5V
To
REEL SENSOR
CN910
PG911
1 HOLDER UP
2 GND
To
CASSETTE HOLDER
SWITCH
CN911
BRN
RED
CN912
BRN
RED
1 SAFETY TAB
2 GND
To
SAFETY TAB SWITCH
PG912
CN913
GRY
VLT
BLU
PNK
YEL
ORN
RED
BRN
8 GND
7 REEL SENSOR
6 5V
5 HOLDER
4 SAFETY TAB
3 MECH 2
2 MECH 1
1 MECH 0
To
SYSTEM CONTROL
PG 804

WIRING II P.C.B


Q901
E C B
L901
R904
R905
C907
D901
R903
R902
C901
D906
PG903
POS 901
ZD902
D904
IC901
9 7 5 3 1
PG901
D903
C902
R906
B C E
CN902
Q902

PG901

1	9V
2	GND
3	12V
4	END LED

To
JACK
CN 711

CN902

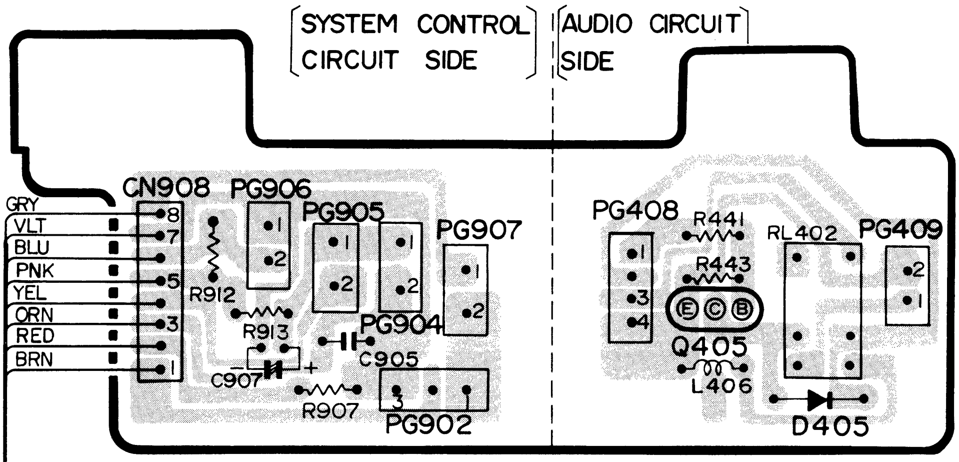
1	END LED
2	LOAD
3	UNLOAD

To
WIRING III
PG 902

PG903

1	LOAD
2	UNLOAD
3	GND

To
LOADING MOTOR
CN 903


SYSTEM CONTROL CIRCUIT SIDE
AUDIO CIRCUIT SIDE
GRY
VLT
BLU
PNK
YEL
ORN
RED
BRN
CN908
PG906
PG905
PG907
R912
R913
C907
PG904
C905
R907
PG902
PG408
R441
R443
RL402
PG409
E C B
Q405
L406
D405

WIRING III P.C.B

CN908

BRN	1	LOAD
RED	2	UNLOAD
ORN	3	FORWARD END
YEL	4	REWIND END
PNK	5	A5V
BLU	6	DEW
VLT	7	GND
GRY	8	5V

To
SYSTEM
CONTROL
PG805

PG408

1	9V
2	REC9V
3	RECORD
4	GND

To
AUDIO
CN401

PG409

1	FULL ERASE
2	GND

To
FULL
ERASE
HEAD

PG904

1	A5V
2	FORWARD END

To
SUPPLY END
SENSOR
CN904

PG905

1	A5V
2	REWIND END

To
TAKE-UP END SENSOR
CN905

PG902

1	UNLOAD
2	LOAD
3	END LED

To
LOADING MOTOR
DRIVER
CN902

PG906

1	DEW
2	GND

To
DEW SENSOR
CN906

PG907

1	5V
2	END LED

To
END LAMP
CN907

S807 A.DUB
S801 REW
S802 F.FWD.
S910 REVERSE
S805 V.DUB
S806 PLAY
S808 RECORD
S911 FRAME ADV.

IC803

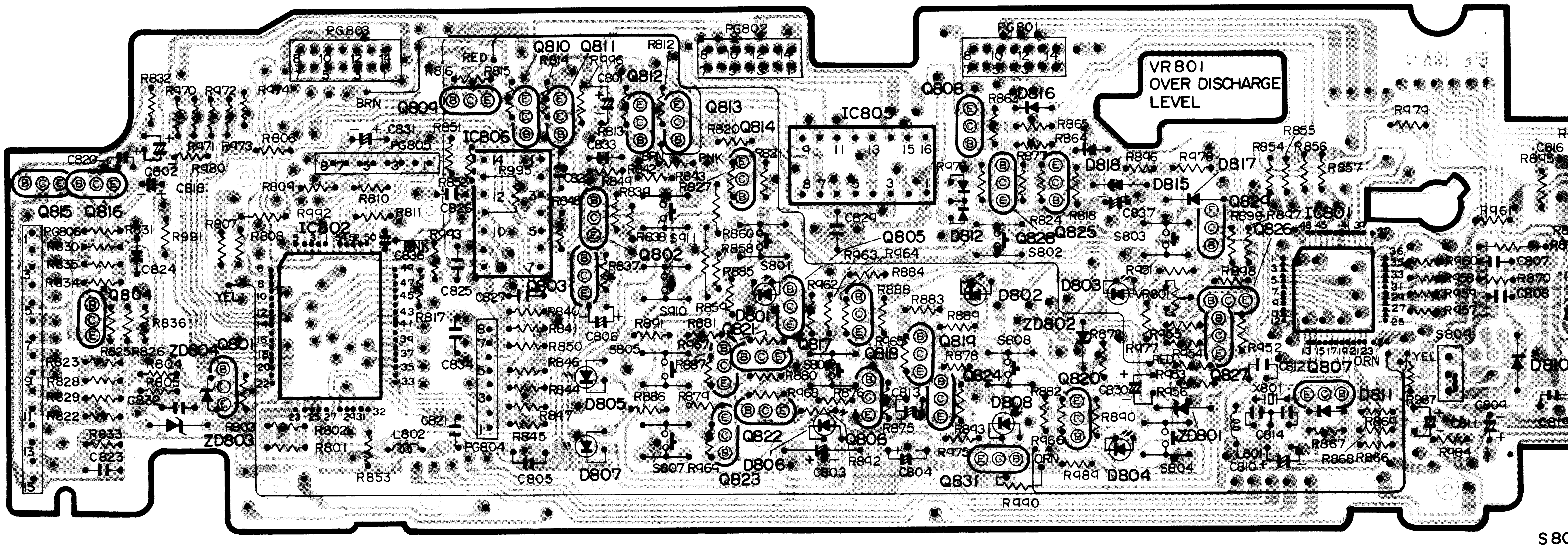
15	0 (0)	16	0.8(0.8)
13	3.7(3.7)	14	4.9(4.9)
11	—(–)	12	0 (0)
9	—(–)	10	0.3(0.3)
7	5.0 (5.0)	8	0.3 (0.3)
5	0.7 (0.7)	6	0 (0)
3	0 (0)	4	0 (0)
1	1.0(0)	2	1.7(1.7)

IC804

15	0 (0)	16	0 (0)
13	1.5(1.5)	14	0 (0)
11	8.7(8.8)	12	4.2(4.2)
9	—(–)	10	—(–)
7	9.4(9.4)	8	—(–)
5	0 (0)	6	8.6 (8.6)
3	0 (0)	4	0(0)
1	0 (0)	2	0(0)

IC806

14	4.9(4.9)	1	0 (0)
13	4.9(0.2)	2	0 (0)
12	0 (0)	3	4.9(4.9)
11	2.5(2.5)	4	0.2(0.2)
10	–(–)	5	0(0)
9	4.6(4.6)	6	0.2(0.2)
8	3.6(3.3)	7	0(0)



PG803
PG802
PG801
VR801
OVER DISCHARGE
LEVEL
IC805
IC806
IC802
IC801
PG805
PG804
PG806
Q801
Q802
Q803
Q804
Q805
Q806
Q807
Q808
Q809
Q810
Q811
Q812
Q813
Q814
Q815
Q816
Q817
Q818
Q819
Q820
Q821
Q822
Q823
Q824
Q825
Q826
Q827
Q828
Q829
Q831
D801
D802
D803
D804
D805
D806
D807
D808
D810
D811
D812
D815
D816
D817
D818
ZD801
ZD802
ZD803
ZD804
S801
S802
S803
S804
S805
S807
S808
S809
S810
S911
X801
L801
L802
RED
BRN
PNK
YEL
ORN

SYSTEM CONTROL P.C.B

S80
OPE

Soldered side
Parts side
● Through hole

PG801

14	REMOTE GND
13	READY 2
12	ACKGT
11	DATA
10	C.STAND-BY
9	12 V
8	SLOW SPEED
7	READY 1
6	TIME ON
5	R.POWER
4	C.PAUSE
3	CAMERA
2	POWER SW ON
1	REMOTE

To
JACK
CN710

PG802

14	NO TAB
13	FF/REW
12	REEL DRIVE
11	AC12V
10	PAUSE
9	LOAD
8	FRAME ADV
7	SLOW
6	SEARCH
5	CURRENTUP
4	A. DUB
3	PB
2	A5V
1	5V

To
JACK
CN709

PG803

14	MUTE
13	OSC STOP
12	DATE BACK-UP
11	GND
10	CYL ON
9	V. DUB
8	REC CHECK
7	CTL PULSE
6	SP
5	CYL. LOCK
4	REVERSE
3	SLACK REMOVE
2	REC
1	SAVE

To
JACK
CN708

PG804

8	GND
7	REEL
6	5V
5	HOLDER
4	SAFETY TAB
3	MECH 2
2	MECH 1
1	MECH 0

To
WIRING (II)
CN913

PG805

1	LOAD
2	UNLOAD
3	FORWARD END
4	REWIND END
5	A 5V
6	DEW
7	GND
8	5V

To
WIRING(III)
CN908

	Q801	Q802	Q803	Q804	Q805	Q8
B	0.6(0.6)	0.3(0.3)	0.5 (0.5)	3.5(3.5)	0(0.3)	0.4
C	0 (0)	4.9(4.9)	0 (0)	4.9(4.9)	0 (0)	1.5
E	0 (0)	0 (0)	0 (0)	2.9(2.9)	0.3(0.3)	0

	Q811	Q812	Q813	Q 814	Q815	Q8
B	5.1(4.8)	0 (0)	4.4(4.4)	5.1(5.2)	2.9(2.9)	2.
C	0 (0)	0.7(0.7)	5.1(5.2)	0 (0)	0 (0)	0
E	5.1(5.1)	5.1(5.1)	5.1(5.1)	5.1(5.1)	2.9(2.9)	3.5

	Q821	Q822	Q823	Q824	Q825	Q8
B	4.9(4.9)	2.6(4.9)	4.9(4.6)	4.9(4.6)	5.1 (0.6)	4.
C	0(0)	1.9(1.9)	0(0)	0 (2.8)	8.4(0.1)	3.
E	4.9(4.9)	2.6(4.9)	4.9(4.9)	4.9(2.7)	4.9 (0)	3.

※VOLTAGES ARE MEASURED IN PLAY

S807
A.DUB

S801
REW

S802
F.FWD.

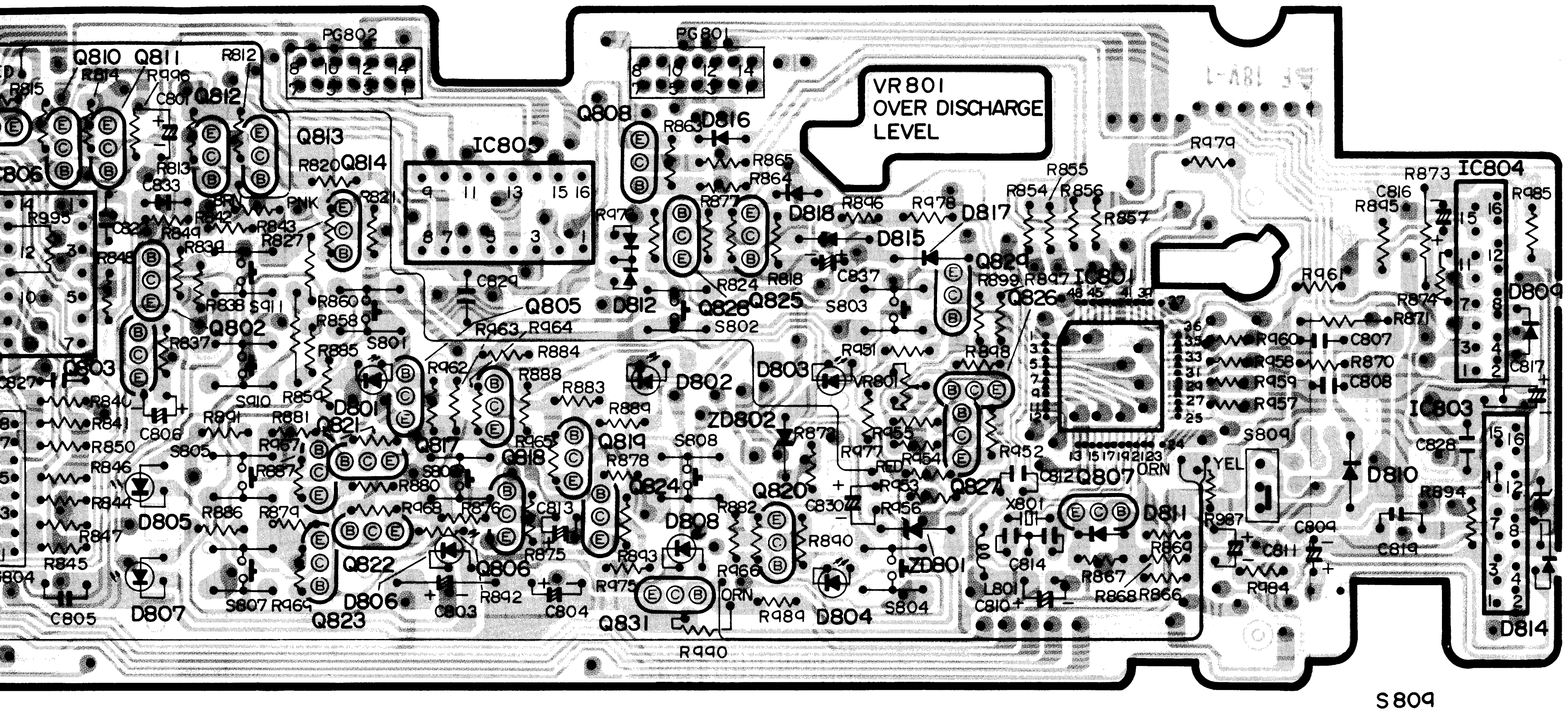
S910
REVERSE

S805
V.DUB

S806
PLAY

S808
RECORD

S911
FRAME ADV.


PG802
PG801
Q810
Q811
R812
R814
R998
C801
Q812
Q813
R820
Q814
IC805
9 11 13 15 16
8 7 5 3 1
Q808
R863
D816
R865
R864
VR801
OVER DISCHARGE
LEVEL
R855
R979
R873
IC804
R985
R854
R856
R857
R895
C816
D818
R896
R978
D817
D815
R977
R877
R824
R818
C837
Q829
R899
R897
IC801
Q826
S803
Q825
Q828
D812
S802
Q805
C829
R860
R858
R885
S801
Q802
R838
S911
R837
R863
R964
R884
R962
R888
R883
D802
D803
R951
VR801
R948
Q803
R840
R841
R850
R846
R844
R847
R845
D805
D807
C805
C806
S910
R891
R881
R859
D801
Q821
R967
R887
R880
Q817
Q818
R865
Q819
R878
S808
R889
ZD802
R871
R877
R955
R954
R952
C812
Q807
ORN
R953
Q824
Q820
C830
R882
D808
R886
R879
R968
R876
C813
Q822
Q806
R875
R893
R966
R890
Q827
X801
D811
R956
ZD801
D804
R989
ORN
S804
L801
C814
C810
R867
R868
R866
R869
S807
R969
D806
Q823
C803
R842
C804
R975
Q831
R990
R960
C807
R958
R870
R959
C808
R957
R961
R874
R871
D809
C817
IC803
C828
S809
YEL
D810
R894
R987
C811
C809
C819
R984
ZD805
D814

SYSTEM CONTROL P.C.B

S809
OPERATE SW

Parts side

• Through hole

IC801

1	3.2(2.9)	11	4.9(4.9)	21	2.3(2.3)	31	0(0)	41	0(0)
2	3.2(3.2)	12	4.9(4.9)	22	4.9(4.9)	32	0(0)	42	0(0.2)
3	3.6(3.6)	13	0(0.9)	23	4.3(4.3)	33	4.6(4.5)	43	4.9(0.9)
4	4.9(0.2)	14	4.8(4.8)	24	0(0)	34	0.4(0.4)	44	4.9(4.9)
5	4.9(2.5)	15	0(0)	25	0(0)	35	0.3(0.3)	45	4.9(4.9)
6	4.9(0.2)	16	4.8(4.8)	26	4.9(4.9)	36	4.1(4.1)	46	4.9(4.9)
7	2.5(4.9)	17	4.9(4.9)	27	4.9(4.9)	37	5.0(5.0)	47	0(0)
8	4.9(4.9)	18	4.9(4.9)	28	0(0)	38	2.4(2.4)	48	3.7(3.0)
9	4.9(4.9)	19	4.9(4.9)	29	0(0)	39	1.5(1.5)		
10	4.9(4.9)	20	2.3(2.1)	30	0(0)	40	1.0(0.2)		

IC802

1	0(0)	11	5.1(5.1)	21	0(0)	31	0(0.8)	41	3.6(3.6)	51	0.1(0.1)
2	4.9(4.9)	12	5.1(5.1)	22	0(0)	32	0(0)	42	4.9(3.9)	52	5.1(5.1)
3	0(0)	13	5.1(0.1)	23	2.5(2.5)	33	4.9(4.9)	43	2.9(0)	53	0.1(0.1)
4	0(0.1)	14	5.1(5.1)	24	2.5(2.5)	34	0.5(0.5)	44	2.7(2.9)	54	0(0)
5	4.9(4.9)	15	0(5.1)	25	4.9(4.9)	35	0.5(0.5)	45	2.9(2.9)		
6	4.9(4.9)	16	5.1(5.1)	26	4.9(4.9)	36	4.5(4.9)	46	27(0)		
7	1.2(4.9)	17	5.1(5.1)	27	4.9(4.9)	37	4.5(4.1)	47	0(2.7)		
8	0(0)	18	5.1(5.1)	28	4.9(0)	38	4.1(3.8)	48	0.1(0.1)		
9	4.9(0)	19	5.1(5.1)	29	0.7(0)	39	3.8(3.4)	49	5.1(5.1)		
10	4.5(5.1)	20	0(0)	30	4.9(4.9)	40	3.2(3.7)	50	4.9(0.1)		

IC805

9	10	11	12	13	14	15	16
5.1(5.1)	0(0)	5.1(5.1)	0.1(0.1)	—	5.1(5.1)	0.1(0.1)	0(0)
8	7	6	5	4	3	2	1
0(0.1)	5.1(5.1)	0.1(0.1)	5.1(5.1)	0.1(0.1)	5.1(5.1)	0(0.1)	5.1(5.1)

G804

L
DER
ETY TAB
H 2
H I
H O

NG (II)
13

PG805

1	LOAD
2	UNLOAD
3	FORWARD END
4	REWIND END
5	A 5V
6	DEW
7	GND
8	5V

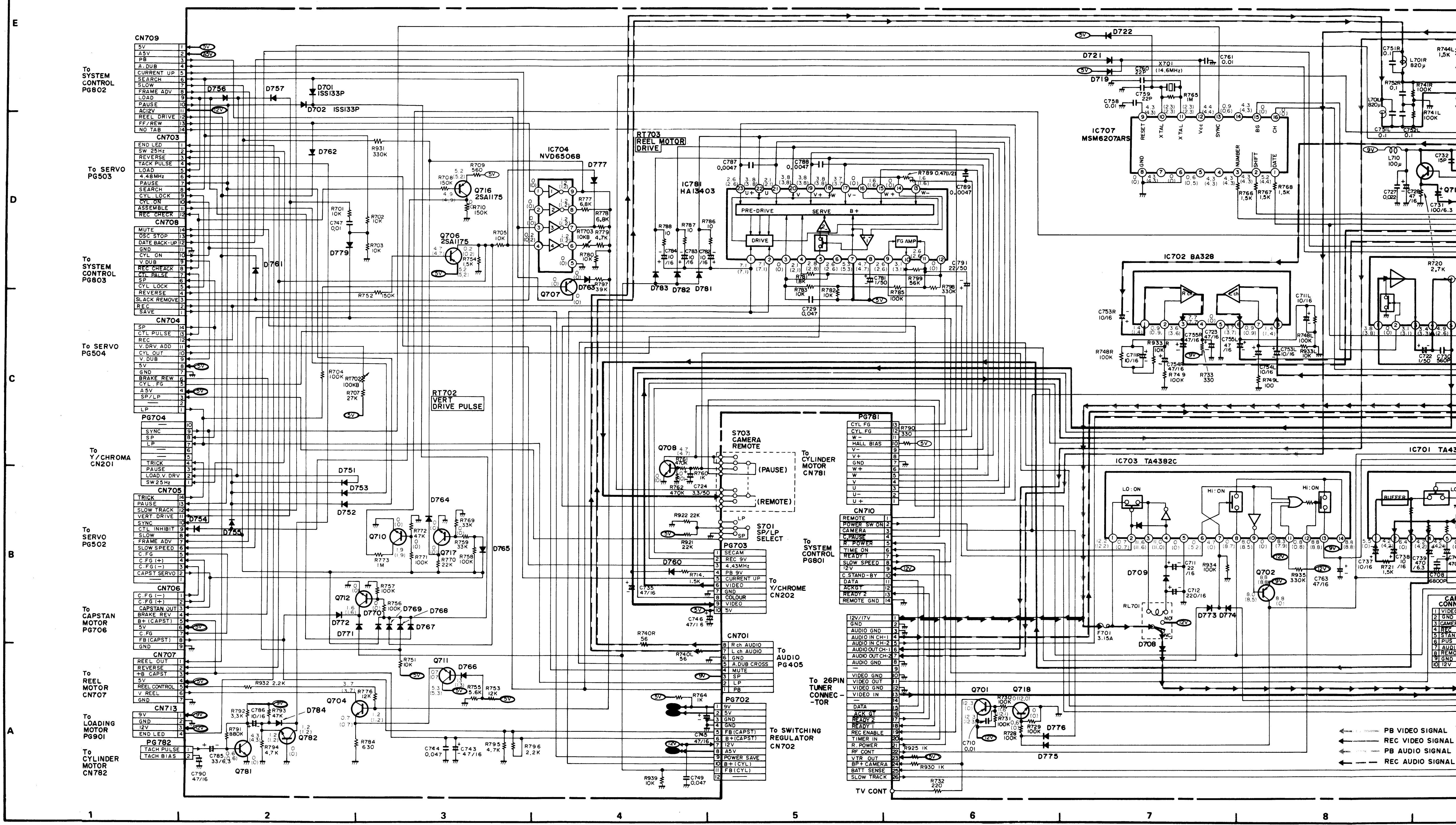
To
WIRING(III)
CN908

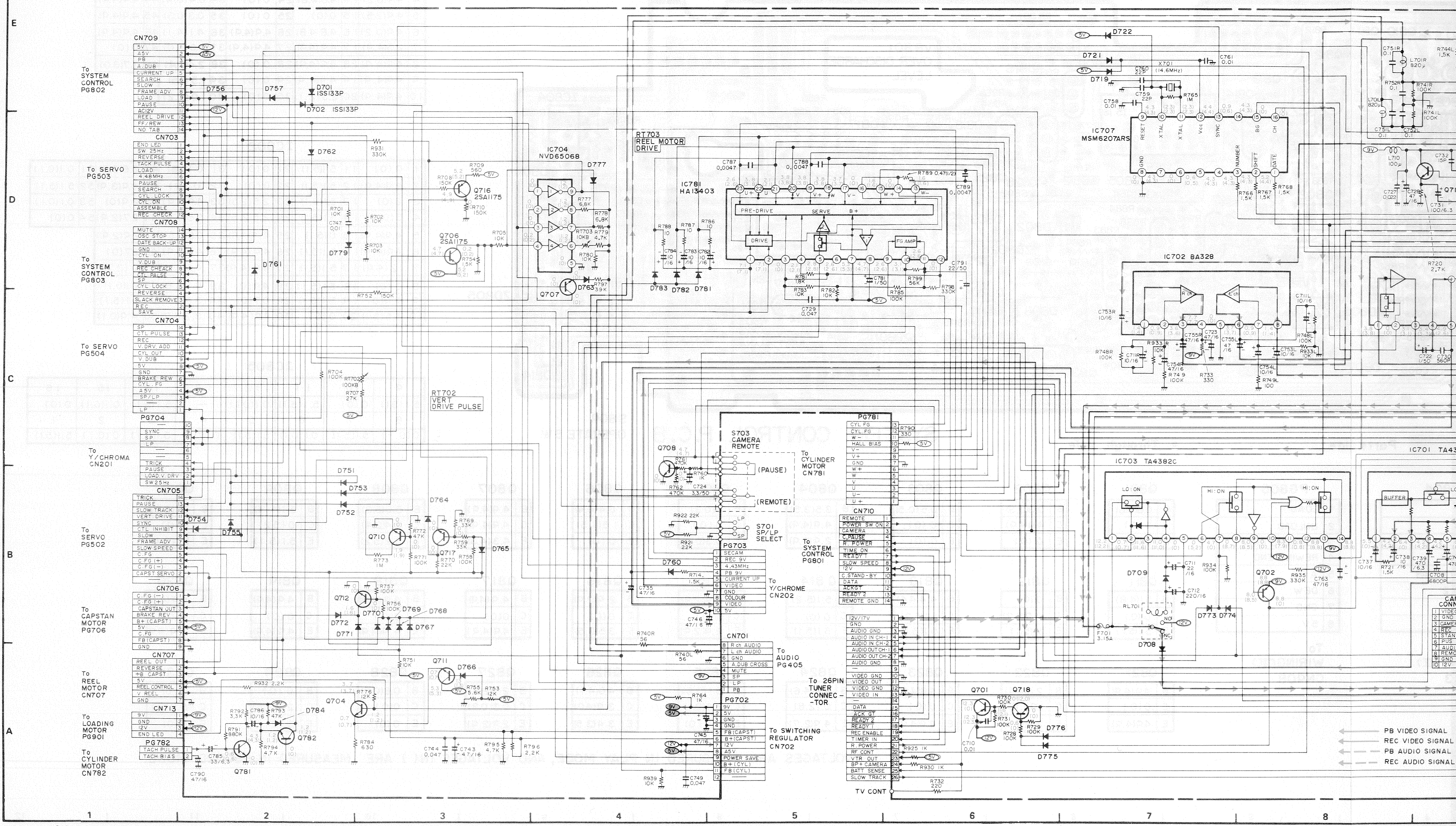
	Q801	Q802	Q803	Q804	Q805	Q806	Q807	Q808	Q809	Q810
B	0.6(0.6)	0.3(0.3)	0.5(0.5)	3.5(3.5)	0(0.3)	0.4(0.4)	4.9(4.9)	5.0(5.0)	5.1(4.4)	5.1(5.2)
C	0(0)	4.9(4.9)	0(0)	4.9(4.9)	0(0)	1.5(1.5)	4.9(4.9)	2.4(2.4)	0(5.2)	0(0)
E	0(0)	0(0)	0(0)	2.9(2.9)	0.3(0.3)	0(0)	4.3(4.3)	5.2(5.2)	5.1(5.1)	5.1(5.1)

	Q811	Q812	Q813	Q 814	Q815	Q816	Q817	Q818	Q819	Q820
B	5.1(4.8)	0(0)	4.4(4.4)	5.1(5.2)	2.9(2.9)	2.9(2.9)	4.9(4.9)	4.9(4.9)	4.9(4.9)	4.9(4.9)
C	0(0)	0.7(0.7)	5.1(5.2)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
E	5.1(5.1)	5.1(5.1)	5.1(5.1)	5.1(5.1)	2.9(2.9)	3.5(3.5)	4.9(4.9)	4.9(4.9)	4.9(4.9)	4.9(4.9)

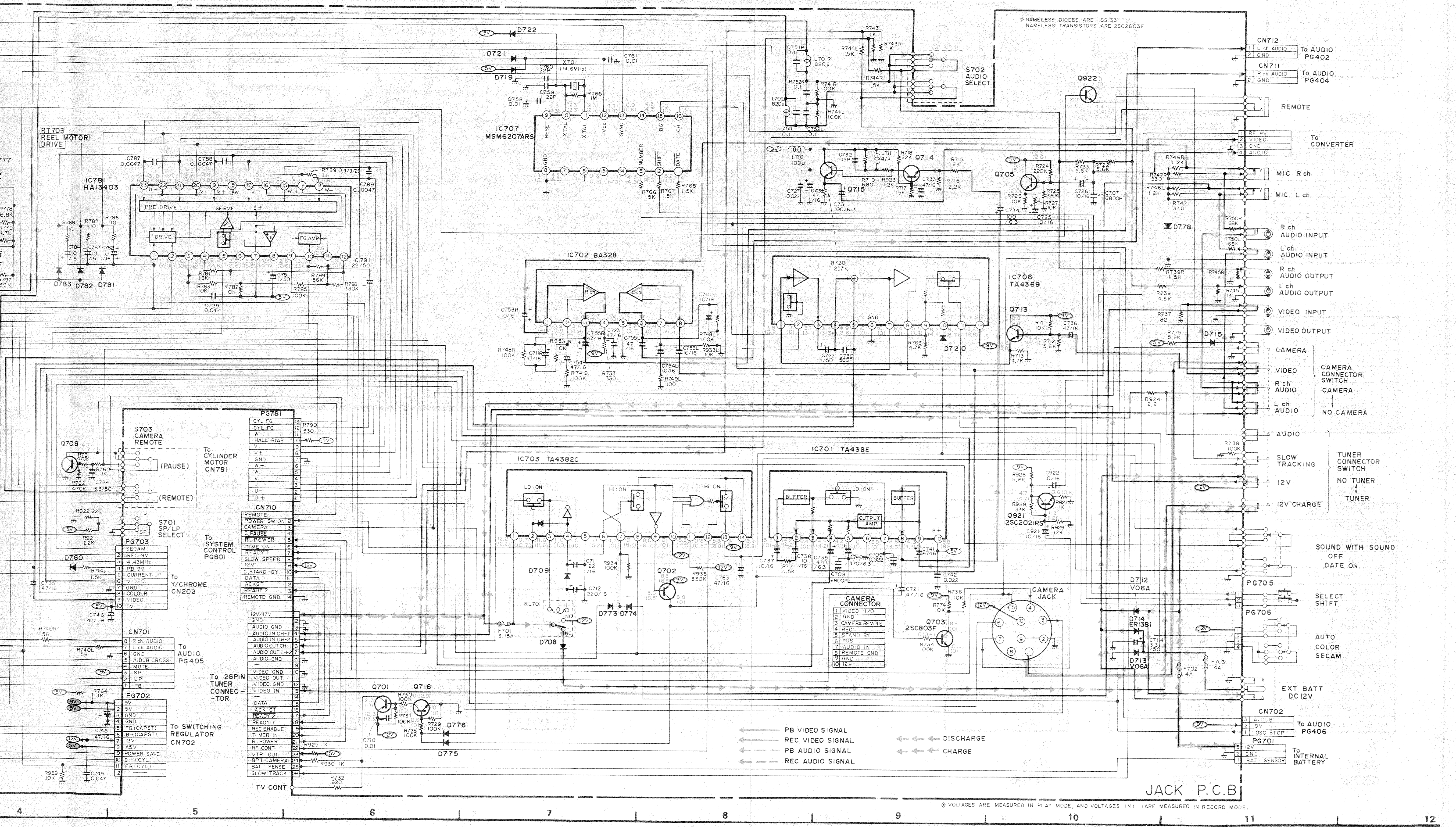
	Q821	Q822	Q823	Q824	Q825	Q826	Q827	Q828	Q829	Q831
B	4.9(4.9)	2.6(4.9)	4.9(4.6)	4.9(4.6)	5.1(0.6)	4.0(4.1)	2.7(2.7)	0.6(0.6)	0(0)	0(0)
C	0(0)	1.9(1.9)	0(0)	0(2.8)	8.4(0.1)	3.9(4.0)	0.3(0.3)	0(0)	2.8(2.8)	5.1(5.1)
E	4.9(4.9)	2.6(4.9)	4.9(4.9)	4.9(2.7)	4.9(0)	3.4(3.5)	2.9(2.9)	0(0)	0(0)	0(0)

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.


E
D
C
B
A
1
2
3
4
5
6
7
8
CN709
To SYSTEM CONTROL PG802
5V
A5V
PB
A.DUB
CURRENT UP
SEARCH
SLOW
FRAME ADV
LOAD
PAUSE
AC12V
REEL DRIVE
FF/REW
NO TAB
CN703
To SERVO PG503
END LED
SW 25Hz
REVERSE
TACK PULSE
LOAD
4.48MHz
PAUSE
SEARCH
CYL.LOCK
CYL.ON
ASSEMBLE
REC CHECK
CN708
To SYSTEM CONTROL PG803
MUTE
OSC STOP
DATE BACK-UP
GND
CYL ON
V.DUB
REC CHEACK
CTL PALSE
SP
CYL LOCK
REVERSE
SLACK REMOVE
REC
SAVE
CN704
To SERVO PG504
SP
CTL PULSE
REC
V.DRV. ADD
CYL OUT
V.DUB
5V
GND
BRAKE REW
CYL.FG
A5V
SP/LP
LP
PG704
To Y/CHROMA CN201
SYNC
SP
LP
TRICK
PAUSE
LOAD.V.DRV
SW25Hz
CN705
To SERVO PG502
TRICK
PAUSE
SLOW TRACK
VERT.DRIVE
SYNC
CTL INHIBIT
SLOW
FRAME ADV
SLOW SPEED
C.FG
C.FG(+)
C.FG(−)
CAPST SERVO
CN706
To CAPSTAN MOTOR PG706
C.FG(−)
C.FG(+)
CAPSTAN OUT
BRAKE REV
B+(CAPST)
5V
C.FG
FB(CAPST)
GND
CN707
To REEL MOTOR CN707
REEL OUT
REVERSE
+B CAPST
5V
REEL CONTROL
V REEL
GND
CN713
To LOADING MOTOR PG901
9V
GND
12V
END LED
PG782
To CYLINDER MOTOR CN782
TACH PULSE
TACH BIAS
D756
D757
D701 1SS133P
D702 1SS133P
D762
D761
D779
R931 330K
R701 10K
C747 0.01
R702 10K
R703 10K
R704 100K
RT702 100KB
R707 27K
RT702 VERT DRIVE PULSE
R752 150K
Q716 2SA1175
R708 150K
R709 560
R710 150K
Q706 2SA1175
R754 1.5K
R705 10K
IC704 NVD65068
D777
R777 6.8K
R778 6.8K
RT703 10KB
R779 4.7K
R780 10K
Q707
D763
R797 39K
RT703 REEL MOTOR DRIVE
IC781 HA13403
PRE-DRIVE
SERVE
B+
DRIVE
FG AMP
C787 0.0047
C788 0.0047
R789 0.47Ω(2)
C789 0.0047
R788 10
R787 10
R786 10
C784 10/16
C783 10/16
C782 10/16
D783
D782
D781
R781 1.8K
R783 10K
R782 10K
C781 1/50
R799 56K
R785 100K
R798 330K
C791 22/50
C729 0.047
D751
D753
D752
D754
D755
D764
Q710
R772 47K
Q717
R769 33K
R759 33K
R773 1M
R771 100K
R770 22K
R758 100K
D765
Q712
R757 100K
R756 100K
D769
D768
D770
D772
D771
D767
R751 10K
Q711
D766
R755 5.6K
R753 12K
Q704
R776 12K
R784 630
C744 0.047
C743 47/16
R795 4.7K
R796 2.2K
R932 2.2K
C786 10/16
R793 47K
R792 3.3K
R791 880K
R794 4.7K
D784
Q782
Q781
C785 33/6.3
C790 47/16
S703 CAMERA REMOTE
Q708
R761 470K
R760 1K
R762 470K
C724 3.3/50
(PAUSE)
(REMOTE)
R922 22K
R921 22K
S701 SP/LP SELECT
LP
SP
PG703
To Y/CHROME CN202
SECAM
REC 9V
4.43MHz
PB 9V
CURRENT UP
VIDEO
GND
COLOUR
VIDEO
5V
D760
R714 1.5K
C735 47/16
C746 47/16
CN701
To AUDIO PG405
R740R 56
R740L 56
R ch AUDIO
L ch AUDIO
GND
A.DUB CROSS
MUTE
SP
LP
PB
PG702
To SWITCHING REGULATOR CN702
R764 1K
C745 47/16
9V
5V
GND
GND
FB(CAPST)
B+(CAPST)
12V
A5V
POWER SAVE
B+(CYL)
FB(CYL)
R939 10K
C749 0.047
PG781
To CYLINDER MOTOR CN781
CYL FG
CYL FG
W−
HALL BIAS
V−
V+
GND
W+
W
V
U
U−
U+
R790 330
CN710
To SYSTEM CONTROL PG801
REMOTE
POWER SW ON
CAMERA
C.PAUSE
R. POWER
TIME ON
READY 1
SLOW SPEED
12V
C.STAND-BY
DATA
ACKGT
READY 2
REMOTE GND
To 26PIN TUNER CONNEC-TOR
12V/17V
GND
AUDIO GND
AUDIO IN CH-1
AUDIO IN CH-2
AUDIO OUT CH-1
AUDIO OUT CH-2
AUDIO GND
VIDEO GND
VIDEO OUT
VIDEO GND
VIDEO IN
DATA
ACK GT
READY 2
READY 1
REC ENABLE
TIMER IN
R.POWER
RF CONT
VTR OUT
BP+CAMERA
BATT SENSE
SLOW TRACK
TV CONT
R925 1K
R930 1K
R732 220
Q701
Q718
R730 100K
R731 100K
R728 100K
R729 100K
D776
D775
C710 0.01
D722
D721
D719
X701 (14.6MHz)
C761 0.01
C760 22P
C759 22P
R765 1M
C758 0.01
IC707 MSM6207ARS
RESET
XTAL
XTAL
Vcc
SYNC
BG
CH
GND
NUMBER
SHIFT
DATE
R766 1.5K
R767 1.5K
R768 1.5K
IC702 BA328
R ch
L ch
C753R 10/16
C711L 10/16
C755R 47/16
C723 47/16
C755L 47
C753L 10/16
R748L 100K
R933L 10K
R748R 100K
C711R 10/16
R933R 10K
C754R 47/16
R749 100K
R733 330
C754L 10/16
R749L 100
IC703 TA4382C
LO:ON
Hi:ON
Hi:ON
D709
C711 22/16
R934 100K
C712 220/16
RL701
F701 3.15A
D708
D773
D774
Q702
R935 330K
C763 47/16
IC701 TA43
BUFFER
C737 10/16
R721 1.5K
C738 10/16
C739 47/6.3
C708 6800P
C751R 0.1
L701R 820μ
R744L 1.5K
R752R 0.1
R741R 100K
L701L 820μ
R741L 100K
C751L 0.1
C752L 0.1
L710 100μ
C732 15P
C727 0.022
C728 47/16
C731 100/6.3
R720 2.7K
C722 1/50
C730 560P
PB VIDEO SIGNAL
REC VIDEO SIGNAL
PB AUDIO SIGNAL
REC AUDIO SIGNAL


E
D
C
B
A
1
2
3
4
5
6
7
8
To SYSTEM CONTROL PG802
CN709
To SERVO PG503
CN703
CN708
To SYSTEM CONTROL PG803
CN704
To SERVO PG504
PG704
To Y/CHROMA CN201
CN705
To SERVO PG502
CN706
To CAPSTAN MOTOR PG706
CN707
To REEL MOTOR CN707
CN713
To LOADING MOTOR PG901
PG782
To CYLINDER MOTOR CN782
IC704 NVD65068
RT703 REEL MOTOR DRIVE
IC781 HA13403
IC707 MSM6207ARS
X701 (14.6MHz)
IC702 BA328
RT702 VERT DRIVE PULSE
PG781
To CYLINDER MOTOR CN781
S703 CAMERA REMOTE
(PAUSE)
(REMOTE)
S701 SP/LP SELECT
CN710
To SYSTEM CONTROL PG801
PG703
To Y/CHROME CN202
CN701
To AUDIO PG405
PG702
To SWITCHING REGULATOR CN702
To 26PIN TUNER CONNEC-TOR
TV CONT
IC703 TA4382C
IC701 TA43
RL701
F701 3.15A
Q701
Q702
Q704
Q706 2SA1175
Q707
Q708
Q710
Q711
Q712
Q716 2SA1175
Q717
Q718
Q781
Q782
PB VIDEO SIGNAL
REC VIDEO SIGNAL
PB AUDIO SIGNAL
REC AUDIO SIGNAL

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		


※NAMELESS DIODES ARE 1SS133
NAMELESS TRANSISTORS ARE 2SC2603F
RT703 REEL MOTOR DRIVE
IC781 HA13403
PRE-DRIVE
SERVE
B+
DRIVE
FG AMP
IC707 MSM6207ARS
X701 (14.6MHz)
RESET
XTAL
Vcc
SYNC
BG
CH
GND
NUMBER
SHIFT
DATE
D722
D721
D719
S702 AUDIO SELECT
Q922
CN712
L ch AUDIO
GND
To AUDIO PG402
CN711
R ch AUDIO
To AUDIO PG404
REMOTE
RF 9V
VIDEO
AUDIO
To CONVERTER
MIC R ch
MIC L ch
R ch AUDIO INPUT
L ch AUDIO INPUT
R ch AUDIO OUTPUT
L ch AUDIO OUTPUT
VIDEO INPUT
VIDEO OUTPUT
CAMERA
VIDEO
R ch AUDIO
L ch AUDIO
CAMERA CONNECTOR SWITCH
CAMERA
NO CAMERA
AUDIO
SLOW TRACKING
12V
12V CHARGE
TUNER CONNECTOR SWITCH
NO TUNER
TUNER
SOUND WITH SOUND OFF
DATE ON
PG705
SELECT
SHIFT
PG706
AUTO
COLOR
SECAM
EXT BATT DC12V
CN702
A.DUB
9V
OSC STOP
To AUDIO PG406
PG701
12V
GND
BATT SENSOR
To INTERNAL BATTERY
Q714
Q715
Q705
IC702 BA328
R ch
L ch
IC706 TA4369
Q713
D720
D715
D778
PG781
CYL FG
W−
HALL BIAS
V−
V+
GND
W+
W
V
U
U−
U+
To CYLINDER MOTOR CN781
S703 CAMERA REMOTE
(PAUSE)
(REMOTE)
Q708
S701 SP/LP SELECT
LP
SP
PG703
SECAM
REC 9V
4.43MHz
PB 9V
CURRENT UP
VIDEO
COLOUR
5V
To Y/CHROME CN202
CN710
REMOTE
POWER SW ON
CAMERA
C.PAUSE
R.POWER
TIME ON
READY 1
SLOW SPEED
C.STAND-BY
DATA
ACK GT
READY 2
REMOTE GND
To SYSTEM CONTROL PG801
CN701
R ch AUDIO
L ch AUDIO
A.DUB CROSS
MUTE
SP
LP
PB
To AUDIO PG405
D760
PG702
FB (CAPST)
B+(CAPST)
A5V
POWER SAVE
B+(CYL)
FB(CYL)
To SWITCHING REGULATOR CN702
12V/17V
AUDIO GND
AUDIO IN CH-1
AUDIO IN CH-2
AUDIO OUT CH-1
AUDIO OUT CH-2
VIDEO GND
VIDEO OUT
VIDEO IN
READY 2
READY 1
REC ENABLE
TIMER IN
R.POWER
RF CONT
VTR OUT
BP+CAMERA
BATT SENSE
SLOW TRACK
To 26PIN TUNER CONNECTOR
TV CONT
IC703 TA4382C
LO:ON
HI:ON
D709
D708
RL701
F701 3.15A
D773 D774
Q702
IC701 TA438E
BUFFER
LO:ON
OUTPUT AMP
CAMERA CONNECTOR
VIDEO I/O
CAMERA REMOTE
REC
STAND BY
PUS
AUDIO IN
REMOTE GND
Q703 2SC803F
CAMERA JACK
Q921 2SC2021RS
D712 V06A
D714 ERI38I
D713 V06A
F702 4A
F703 4A
Q701
Q718
D776
D775
PB VIDEO SIGNAL
REC VIDEO SIGNAL
PB AUDIO SIGNAL
REC AUDIO SIGNAL
DISCHARGE
CHARGE
JACK P.C.B
※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.
4
5
6
7
8
9
10
11
12

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
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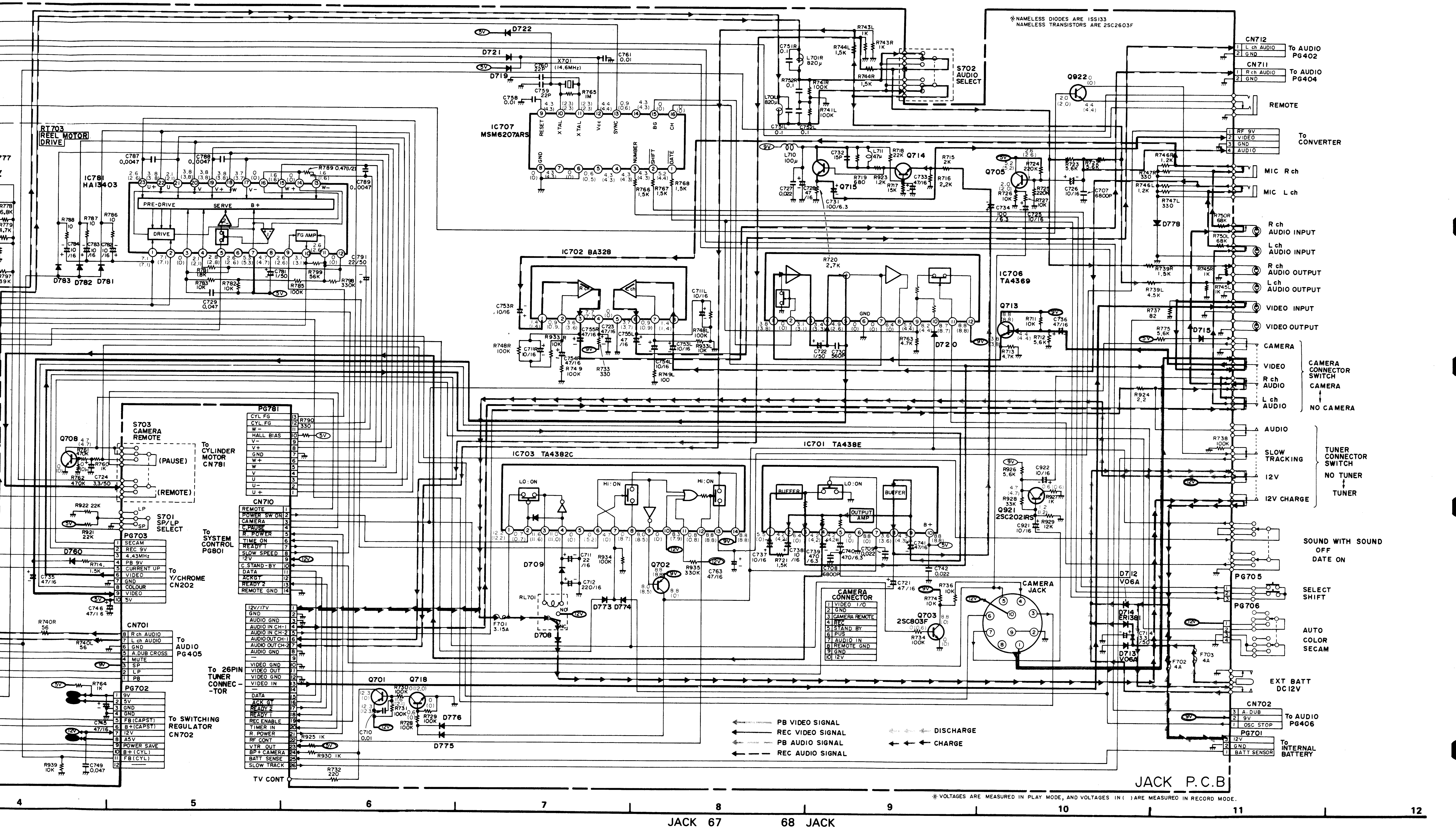
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL	130
AUDIO	94	(I-R TRANSMITTER)	
TUNER/IF (For BS)	98		

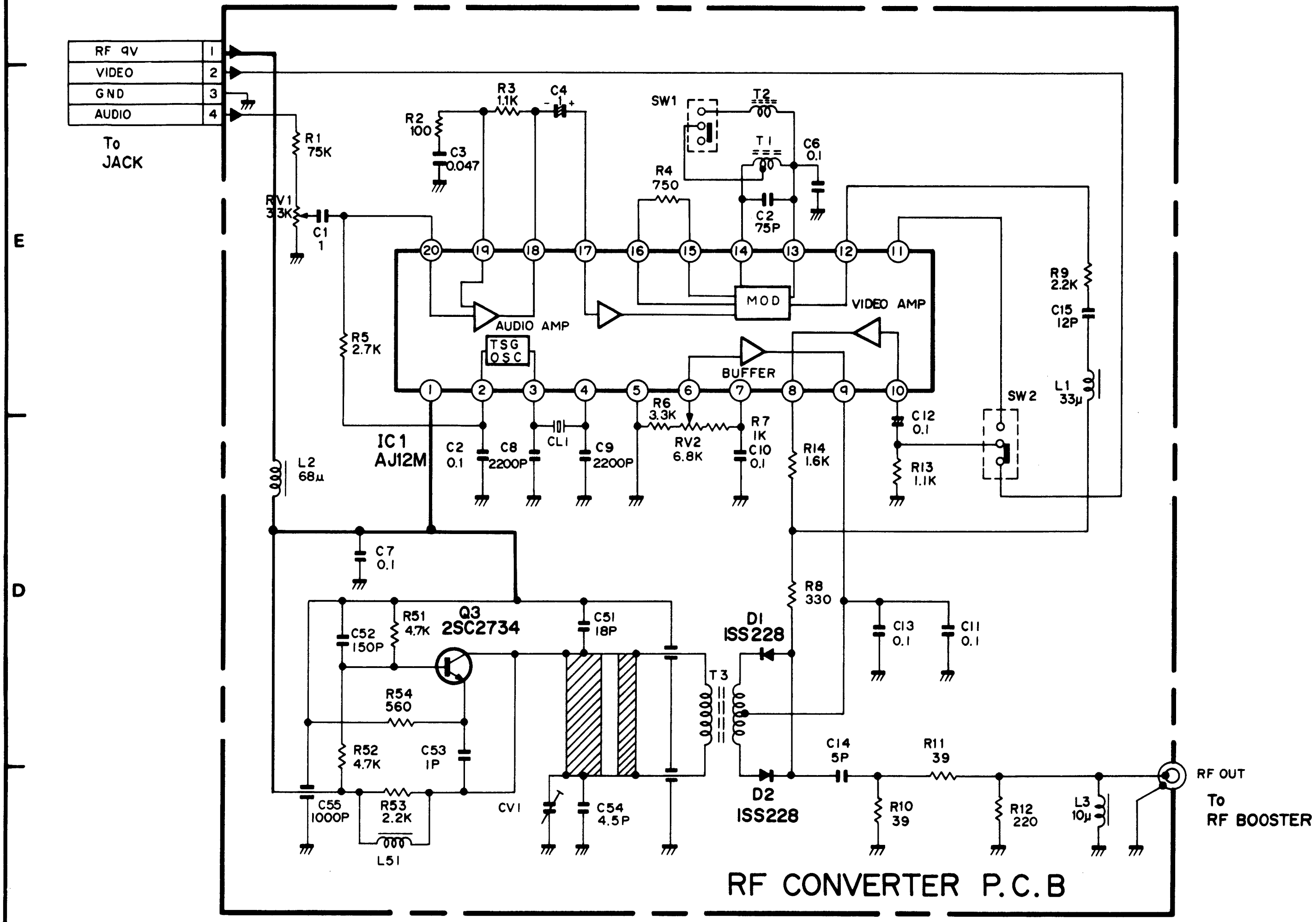


JACK P.C.B
IC707 MSM6207ARS
IC781 HA13403
RT703 REEL MOTOR DRIVE
IC702 BA328
IC706 TA4369
IC703 TA4382C
IC701 TA438E
PG781
CN710
PG703
CN701
PG702
S703 CAMERA REMOTE
S701 SP/LP SELECT
S702 AUDIO SELECT
To CYLINDER MOTOR CN781
To SYSTEM CONTROL PG801
To Y/CHROME CN202
To AUDIO PG405
To SWITCHING REGULATOR CN702
To 26PIN TUNER CONNECTOR
CN712 To AUDIO PG402
CN711 To AUDIO PG404
REMOTE
To CONVERTER
MIC R ch
MIC L ch
R ch AUDIO INPUT
L ch AUDIO INPUT
R ch AUDIO OUTPUT
L ch AUDIO OUTPUT
VIDEO INPUT
VIDEO OUTPUT
CAMERA CONNECTOR SWITCH
CAMERA ↕ NO CAMERA
TUNER CONNECTOR SWITCH
NO TUNER ↕ TUNER
SOUND WITH SOUND OFF DATE ON
SELECT SHIFT
AUTO COLOR SECAM
EXT BATT DC12V
CN702 To AUDIO PG406
PG701 To INTERNAL BATTERY
CAMERA JACK
CAMERA CONNECTOR
PB VIDEO SIGNAL
REC VIDEO SIGNAL
PB AUDIO SIGNAL
REC AUDIO SIGNAL
DISCHARGE
CHARGE
4
5
6
7
8
9
10
11
12

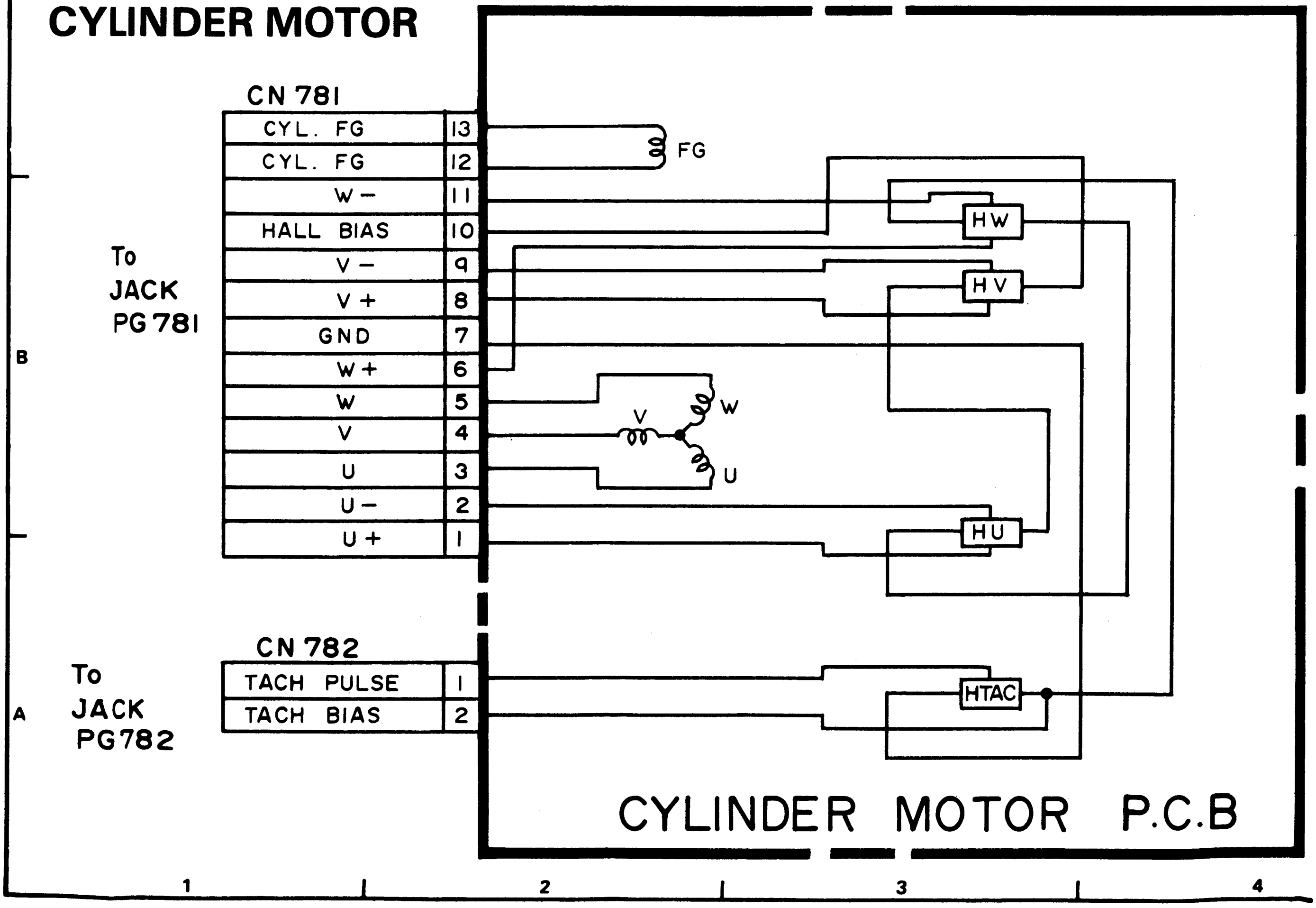
※NAMELESS DIODES ARE 1SS133
NAMELESS TRANSISTORS ARE 2SC2603F

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

RF CONVERTER


RF 9V 1
VIDEO 2
GND 3
AUDIO 4
To JACK
E
D
R1 75K
RV1 3.3K
C1 1
R2 100
C3 0.047
R3 1.1K
C4 1
SW1
T2
T1
C6 0.1
R4 750
C2 75P
R9 2.2K
C15 12P
L1 33μ
AUDIO AMP
MOD
VIDEO AMP
TSG OSC
BUFFER
R5 2.7K
SW2
IC1 AJ12M
C2 0.1
C8 2200P
CL1
C9 2200P
R6 3.3K
RV2 6.8K
R7 1K
C10 0.1
R14 1.6K
C12 0.1
R13 1.1K
L2 68μ
C7 0.1
R8 330
Q3 2SC2734
R51 4.7K
C52 150P
C51 18P
D1 ISS228
C13 0.1
C11 0.1
R54 560
T3
R52 4.7K
C53 1P
C14 5P
R11 39
RF OUT
To RF BOOSTER
C55 1000P
R53 2.2K
L51
CV1
C54 4.5P
D2 ISS228
R10 39
R12 220
L3 10μ
RF CONVERTER P.C.B

CYLINDER MOTOR


CN 781
CYL. FG 13
CYL. FG 12
W− 11
HALL BIAS 10
V− 9
V+ 8
GND 7
W+ 6
W 5
V 4
U 3
U− 2
U+ 1
To JACK PG781
B
FG
HW
HV
W
V
U
HU
CN 782
TACH PULSE 1
TACH BIAS 2
To JACK PG782
A
HTAC
CYLINDER MOTOR P.C.B
1
2
3
4

JACK CIRCUIT BOARD DIAGRAM

IC701

1	2	3	4	5	6	7	8	9	10
5.5 (0)	4.2 (4.2)	6.4 (0)	4.2(4.2)	4.2(4.2)	0 (0)	8.8 (0)	3.6(3.6)	4.3 (4.3)	8.8(8.8)

IC702

1	2	3	4	5	6	7	8
1.4 (1.4)	0.9 (0.9)	3.6 (3.6)	7.7 (7.7)	0 (0)	3.7(3.7)	0.9(0.9)	1.4 (1.4)

IC703

1	2	3	4	5	6	7	8	9	10	11	12	13	14
12.2(12.2)	0.7(0.7)	11.6(11.6)	11.0(11.0)	0 (0)	0 (5.2)	4.7 (0)	0(8.7)	8.0(8.5)	0(0)	8.3(7.9)	0.8 (0.8)	8.8(8.8)	8.8(8.8)

IC704

1	2	3	4	5	6	7	8	9
0 (0)	0 (0)	0(0)	0.2 (0.2)	0 (0)	1.2 (1.2)	1.2 (1.2)	1.2 (1.2)	1.2 (1.2)

IC706

1	2	3	4	5	6	7	8	9	10	11	12
3.8 (3.8)	0 (0)	3.1(3.1)	3.4(3.3)	4.9(2.6)	0 (0)	0 (0)	6.4 (0)	5.5 (4.4)	8.2(4.4)	8.7(8.7)	8.8(8.8)

IC707

1	2	3	4	5	6	7	8
5.2(4.4)	4.3(4.3)	4.3 (4.3)	4.3(4.3)	0.6(0.5)	0 (0)	4.3(4.3)	0 (0)
9	10	11	12	13	14	15	16
4.3 (4.3)	2.3(2.3)	2.3(2.3)	4.4(4.4)	0.9(0.6)	4.3(4.3)	0 (0)	0 (0)

IC781

1	2	3	4	5	6	7	8	9	10	11	12
7.1 (7.1)	7.1 (7.1)	0(0)	2.1(2.1)	2.8(2.8)	2.6(2.6)	5.3 (5.3)	4.7(4.7)	2.6(2.6)	3.1 (3.1)	2.6(2.6)	0(0)
13	14	15	16	17	18	19	20	21	22	23	
1.6 (1.6)	0 (0)	1.6 (1.6)	0 (0)	3.7(3.7)	3.8(3.8)	3.8 (3.8)	3.8 (3.8)	2.7 (2.7)	3.8 (3.8)	2.6 (2.6)	

Q701

E	12.3(12.3)
C	12.3 (0)
B	11.6(12.1)

Q702

E	8.8 (8.8)
C	8.8 (0)
B	8.0(8.5)

Q703

E	0 (0)
C	8.8 (0)
B	0(0.6)

Q704

E	0.7 (0.7)
C	3.7 (3.7)
B	1.2 (1.2)

Q705

E	2.0 (2.0)
C	5.2 (5.2)
B	2.6 2.6

Q706

E	0 (5.2)
C	0 (0.2)
B	0 (4.7)

Q707

E	0 (0)
C	0 (0)
B	0 (0)

Q708

E	0 (0)
C	4.7(4.7)
B	0 (0)

Q710

E	0 (0)
C	1.9 (1.9)
B	0 (0)

Q711

E	0.7 (0.7)
C	5.3 (5.3)
B	1.3 (1.3)

Q712

E	0 (0)
C	1.6 (1.6)
B	0 (0)

Q713

E	3.8 (3.8)
C	8.8 (8.8)
B	4.4(4.4)

Q716

E	5.2(5.2)
C	0 (0)
B	4.9 (4.9)

Q717

E	0 (0)
C	0 (0)
B	0 (0)

Q718

E	0 (0)
C	0(12.0)
B	(0.6) (0)

Q722

E	4.4 (4.4)
C	0 (0)
B	2.0 (2.0)

Q782

E	1.2 (1.2)
C	1.2 (1.2)
B	0 (0)

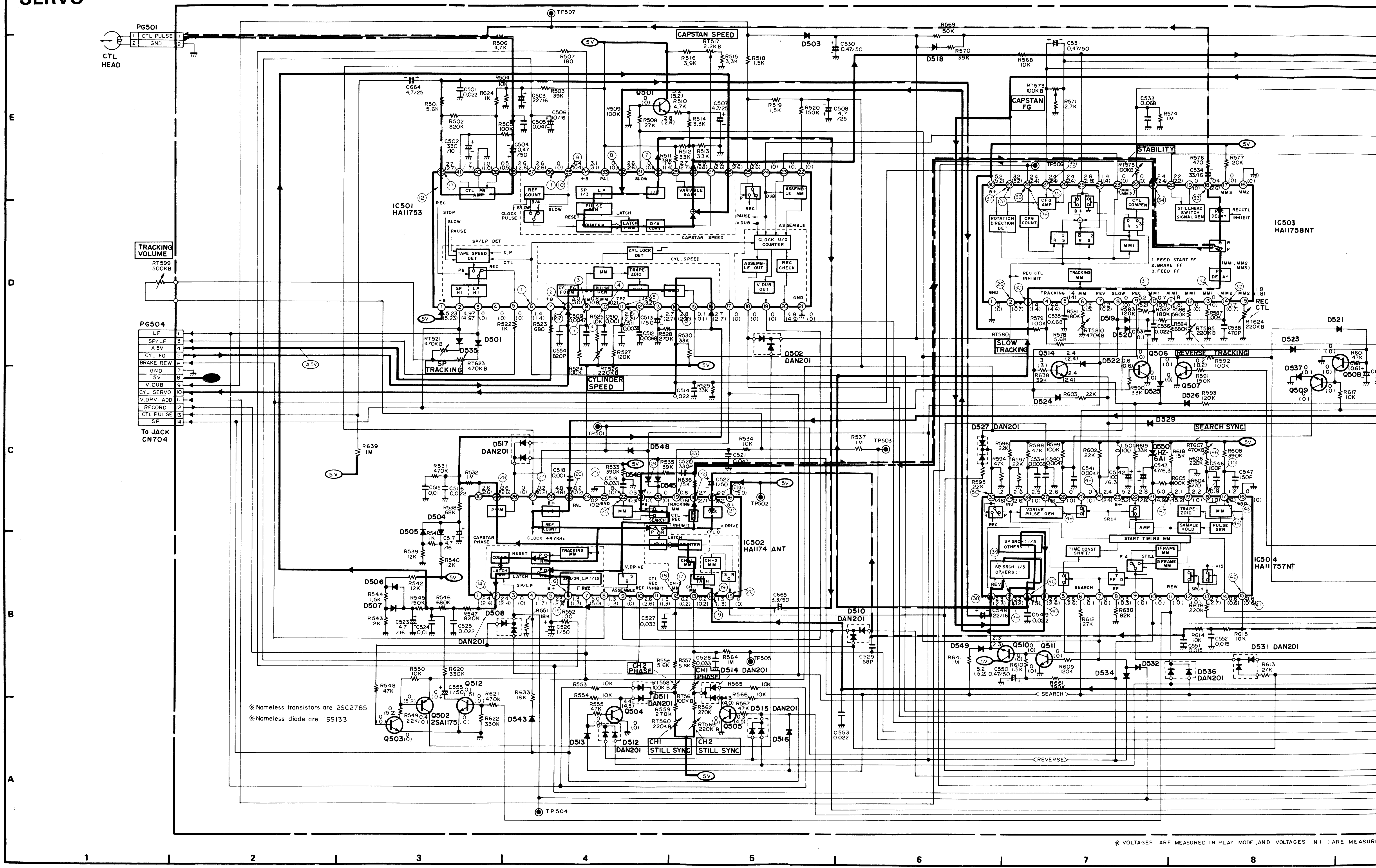
Q781

E	0 (0)
C	4.3(4.3)
B	0.6 (0.6)

Q921

E	0.6(0.6)
C	4.7 (4.7)
B	1.2 (1.2)

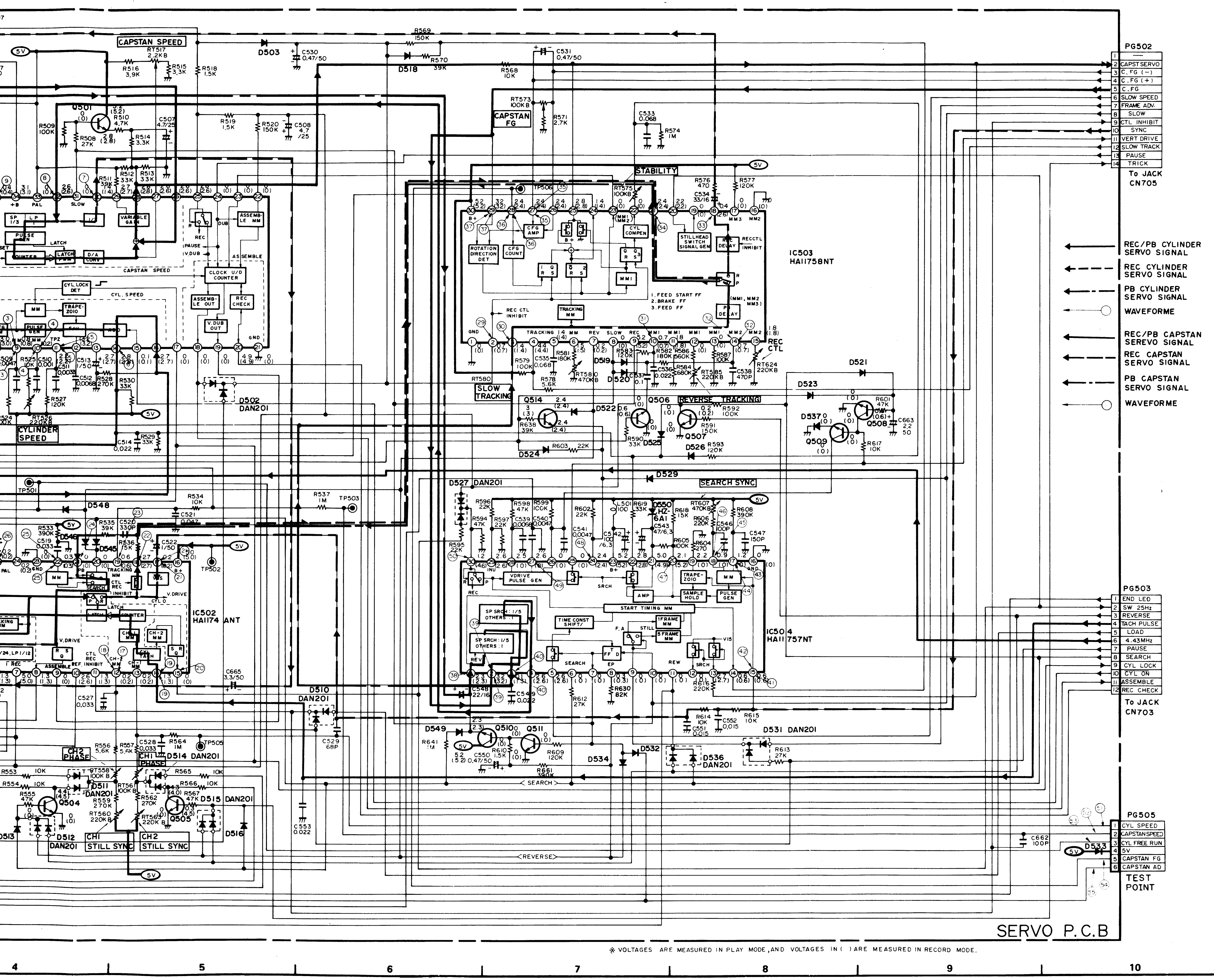
SERVO


CTL HEAD
PG501
CTL PULSE
GND
TRACKING VOLUME
RT599 500KB
PG504
LP
SP/LP
A5V
CYL FG
BRAKE REW
GND
5V
V.DUB
CYL SERVO
V.DRV. ADD
RECORD
CTL PULSE
SP
To JACK CN704
TP507
CAPSTAN SPEED
IC501 HA11753
CAPSTAN FG
STABILITY
IC503 HA11758NT
SP TRACKING
CYLINDER SPEED
SLOW TRACKING
REVERSE TRACKING
REC CTL
IC502 HA11748NT
SEARCH SYNC
IC504 HA11757NT
CH2 PHASE
CH1 PHASE
CH1 STILL SYNC
CH2 STILL SYNC
Q501
Q502 2SA1175
Q503
Q504
Q505
Q506
Q507
Q508
Q509
Q510
Q511
Q512
Q514
D501
D502 DAN201
D503
D510 DAN201
D517 DAN201
D527 DAN201
D531 DAN201
D536 DAN201
D550 HZ-6A1
TP501
TP502
TP503
TP504
TP505
TP506
<SEARCH>
<REVERSE>
E
D
C
B
A
1
2
3
4
5
6
7
8

※Nameless transistors are 2SC2785
※Nameless diode are 1SS133

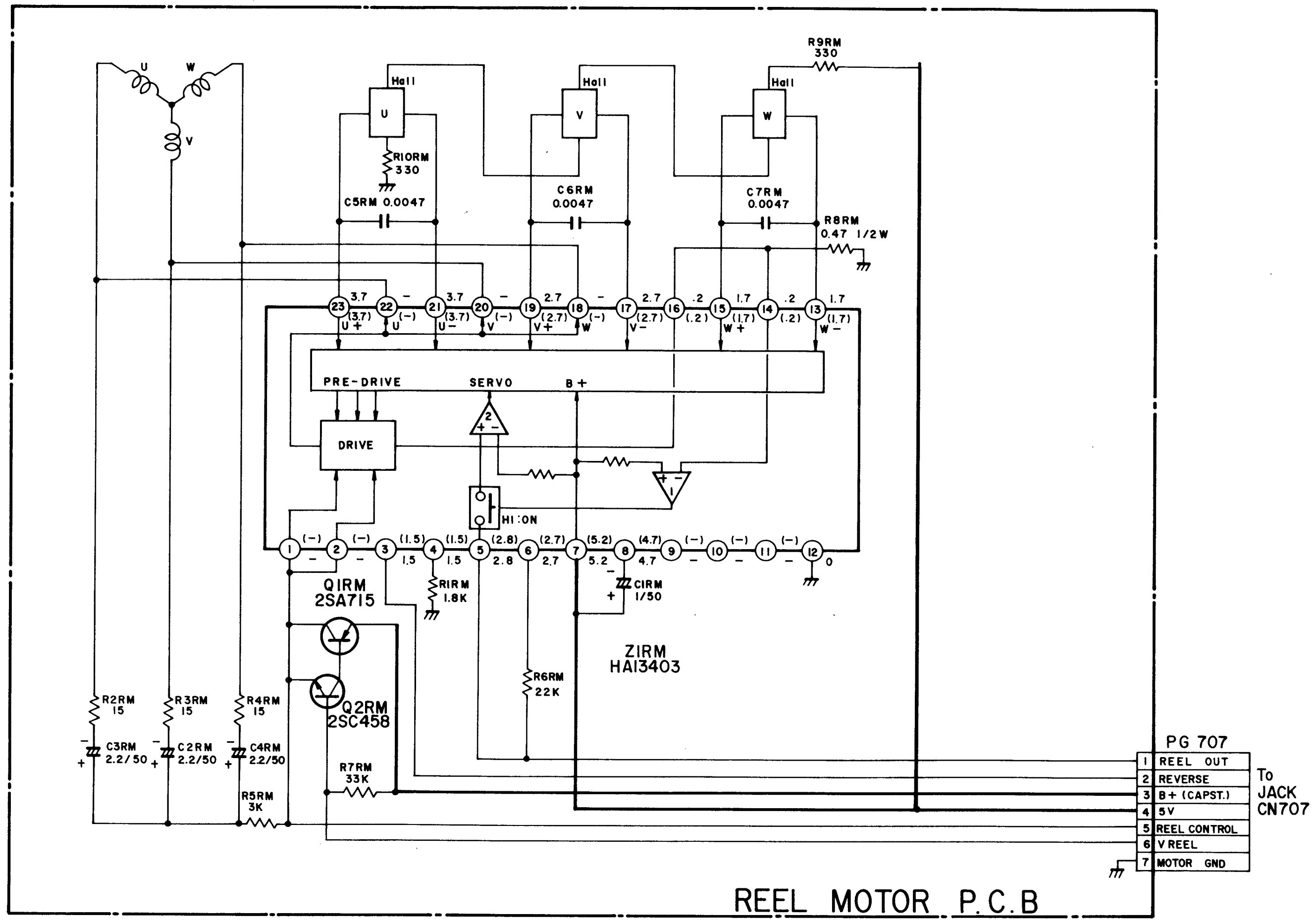
※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURE

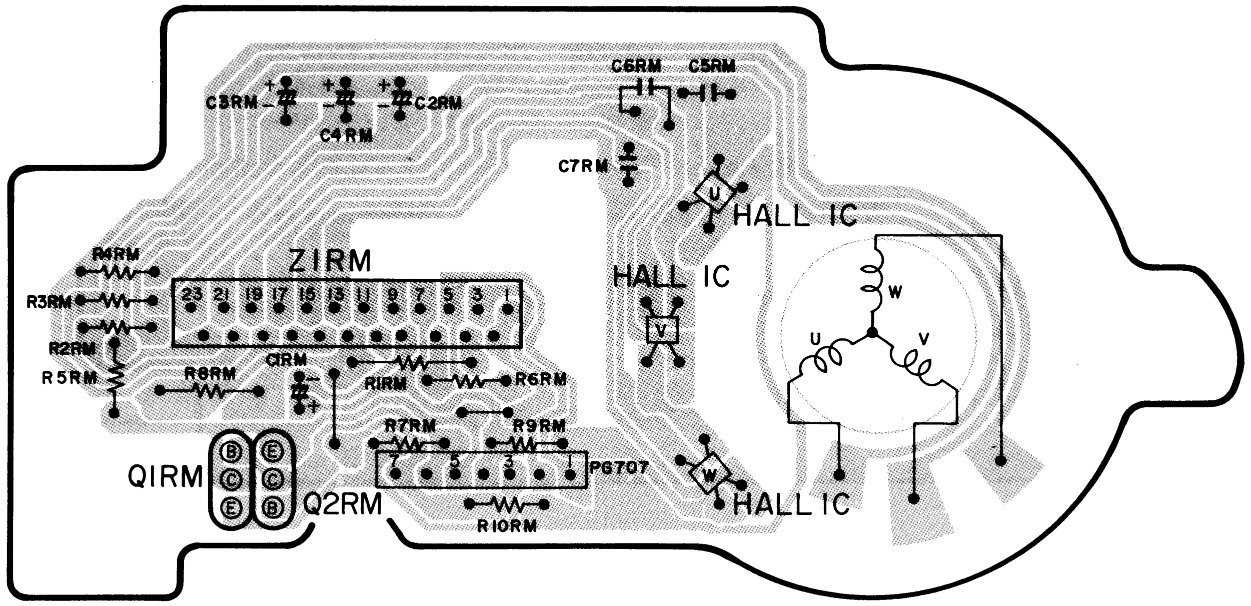
SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL	130
AUDIO	94	(I-R TRANSMITTER)	
TUNER/IF (For BS)	98		


PG502
1 —
2 CAPST SERVO
3 C.FG (−)
4 C.FG (+)
5 C.FG
6 SLOW SPEED
7 FRAME ADV.
8 SLOW
9 CTL INHIBIT
10 SYNC
11 VERT DRIVE
12 SLOW TRACK
13 PAUSE
14 TRICK
To JACK CN705
REC/PB CYLINDER SERVO SIGNAL
REC CYLINDER SERVO SIGNAL
PB CYLINDER SERVO SIGNAL
WAVEFORME
REC/PB CAPSTAN SEREVO SIGNAL
REC CAPSTAN SERVO SIGNAL
PB CAPSTAN SERVO SIGNAL
WAVEFORME
PG503
1 END LED
2 SW 25Hz
3 REVERSE
4 TACH PULSE
5 LOAD
6 4.43MHz
7 PAUSE
8 SEARCH
9 CYL LOCK
10 CYL ON
11 ASSEMBLE
12 REC CHECK
To JACK CN703
PG505
1 CYL SPEED
2 CAPSTAN SPEED
3 CYL FREE RUN
4 5V
5 CAPSTAN FG
6 CAPSTAN AD
TEST POINT
IC503 HA11758NT
IC504 HA11757NT
IC502 HA11744NT
CAPSTAN SPEED
CAPSTAN FG
CYLINDER SPEED
STABILITY
SLOW TRACKING
REVERSE TRACKING
SEARCH SYNC
REC CTL
CH1 PHASE
CH2 PHASE
CH1 STILL SYNC
CH2 STILL SYNC
Q501
Q504
Q505
Q506
Q507
Q508
Q509
Q510
Q511
Q514
D502 DAN201
D510 DAN201
D511 DAN201
D512 DAN201
D514 DAN201
D515 DAN201
D527 DAN201
D531 DAN201
D536 DAN201
D550 HZ-6A1
TP501
TP502
TP503
TP505
TP506
<REVERSE>
< SEARCH >
SERVO P.C.B
4
5
6
7
8
9
10
11

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

REEL MOTOR


U
W
V
Hall
R10RM 330
C5RM 0.0047
C6RM 0.0047
C7RM 0.0047
R9RM 330
R8RM 0.47 1/2W
PRE-DRIVE
SERVO
B+
DRIVE
HI:ON
Q1RM 2SA715
Q2RM 2SC458
R1RM 1.8K
C1RM 1/50
Z1RM HA13403
R6RM 22K
R2RM 15
R3RM 15
R4RM 15
C3RM 2.2/50
C2RM 2.2/50
C4RM 2.2/50
R7RM 33K
R5RM 3K
PG 707
1 REEL OUT
2 REVERSE
3 B+ (CAPST.)
4 5V
5 REEL CONTROL
6 V REEL
7 MOTOR GND
To JACK CN707
REEL MOTOR P.C.B


C3RM
C4RM
C2RM
C6RM
C5RM
C7RM
HALL IC
HALL IC
HALL IC
ZIRM
23 21 19 17 15 13 11 9 7 5 3 1
R4RM
R3RM
R2RM
R5RM
R6RM
C1RM
R1RM
R6RM
R7RM
R9RM
PG707
R10RM
Q1RM
Q2RM
W
U
V

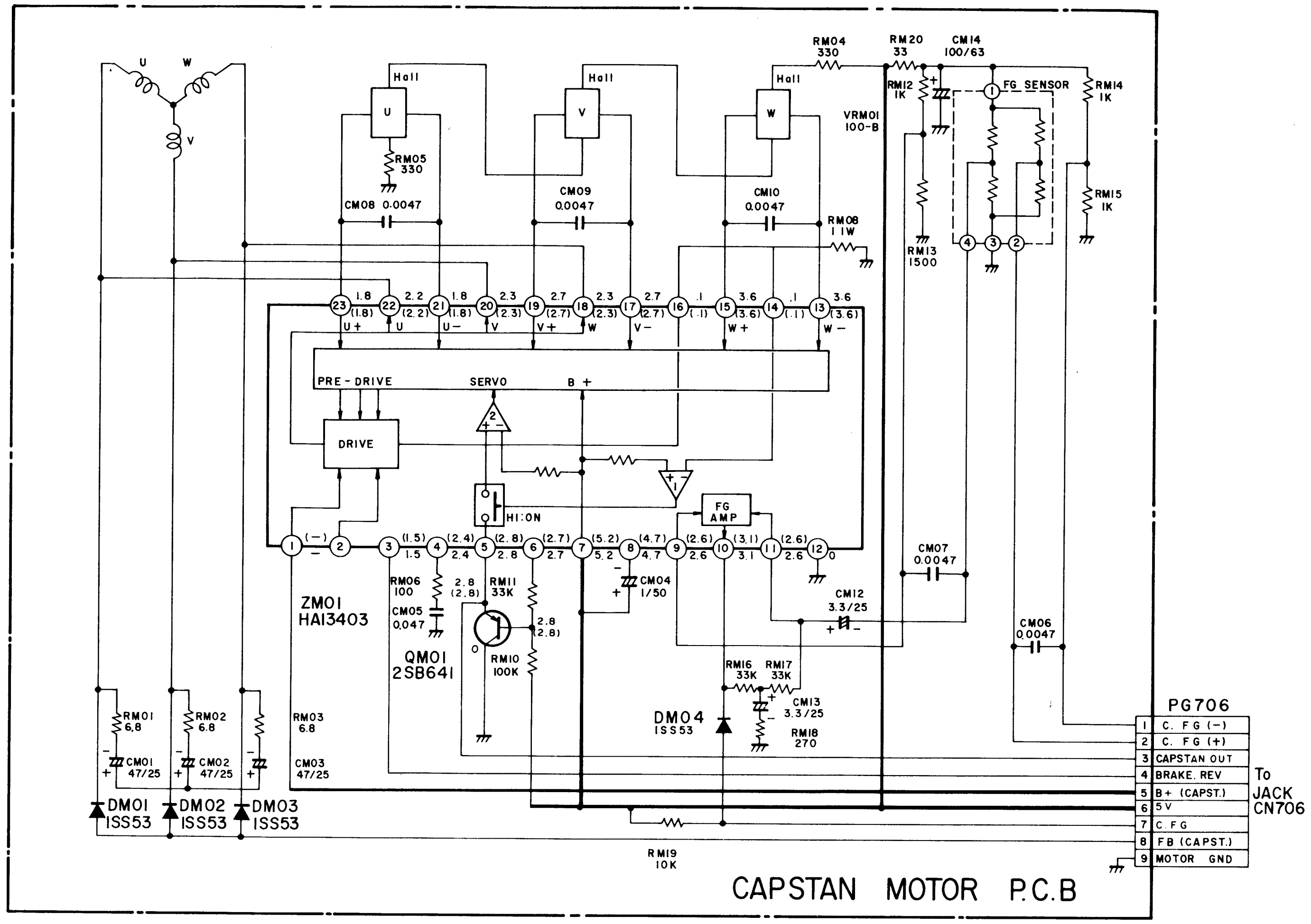
REEL MOTOR P.C.B

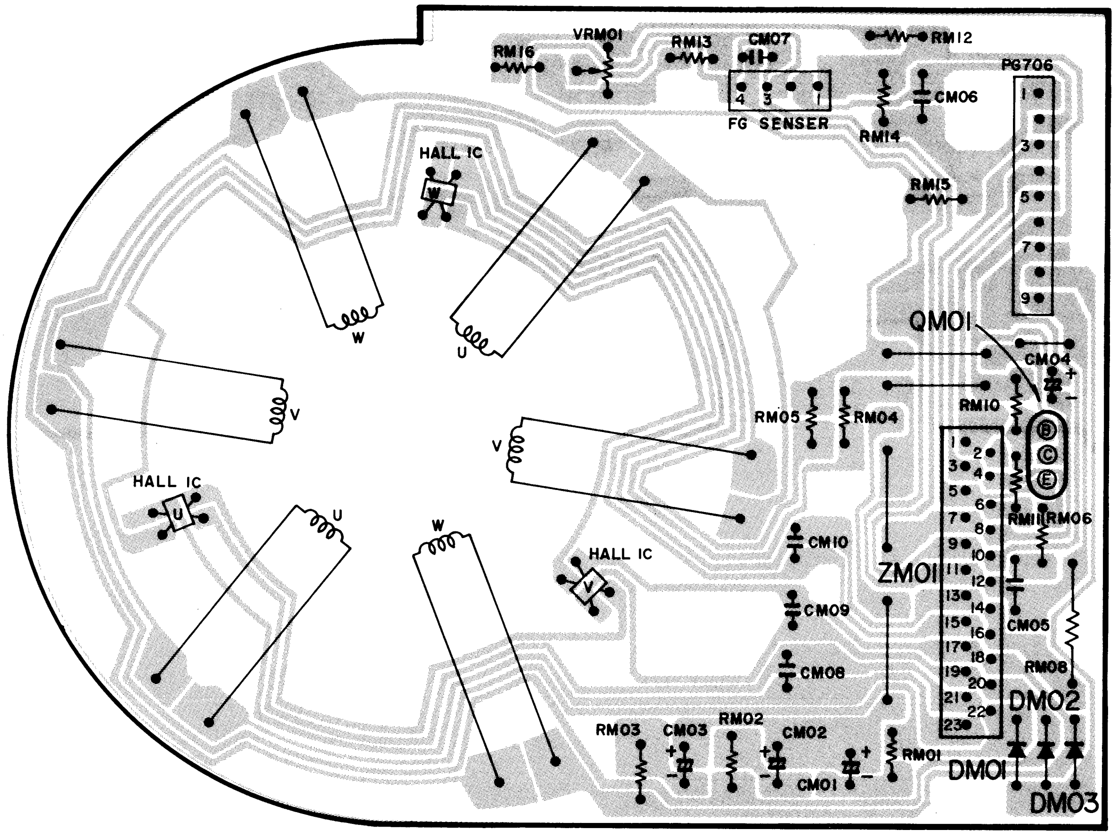
PG 707

1	REEL OUT
2	REVERSE
3	B +(CAPST.)
4	5V
5	REEL CONTROL
6	VREEL
7	MOTOR GND

To
JACK
CN707

CAPSTAN MOTOR


U
W
V
Hall
RM04 330
RM20 33
CM14 100/63
RM12 1K
VRM01 100-B
FG SENSOR
RM14 1K
RM15 1K
RM13 1500
RM05 330
CM08 0.0047
CM09 0.0047
CM10 0.0047
RM08 1 1W
PRE-DRIVE
SERVO
B+
DRIVE
HI:ON
FG AMP
ZM01 HA13403
RM06 100
CM05 0.047
RM11 33K
QM01 2SB641
RM10 100K
CM04 1/50
CM12 3.3/25
CM07 0.0047
CM06 0.0047
RM16 33K
RM17 33K
CM13 3.3/25
RM18 270
DM04 1SS53
RM01 6.8
RM02 6.8
RM03 6.8
CM01 47/25
CM02 47/25
CM03 47/25
DM01 1SS53
DM02 1SS53
DM03 1SS53
RM19 10K
PG706
1 C. FG (-)
2 C. FG (+)
3 CAPSTAN OUT
4 BRAKE. REV
5 B+ (CAPST.)
6 5V
7 C. FG
8 FB (CAPST.)
9 MOTOR GND
To JACK CN706
CAPSTAN MOTOR P.C.B


RM16
VRM01
RM13
CM07
RM12
PG706
FG SENSER
RM14
CM06
HALL IC
HALL IC
HALL IC
RM15
QM01
CM04
RM10
RM05
RM04
ZM01
CM10
CM09
CM08
RMII
RM06
CM05
RM08
DM02
DM01
DM03
RM03
CM03
RM02
CM02
CM01
RM01
W
U
V
V
U
W

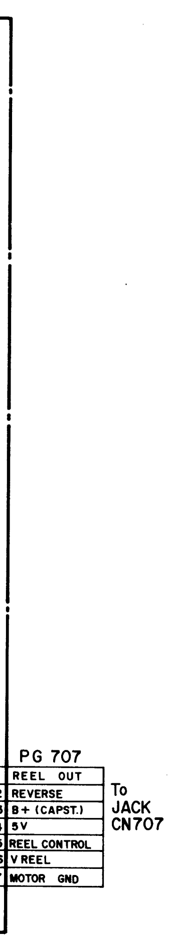
CAPSTAN MOTOR P.C.B

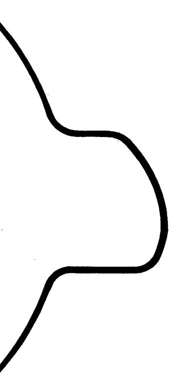
PG706

1	C. FG(−)
2	C. FG(+)
3	CAPSTAN OUT
4	BRAKE . REV.
5	B+(CAPST.)
6	5V
7	C. FG
8	FB (CAPST.)
9	MOTOR GND

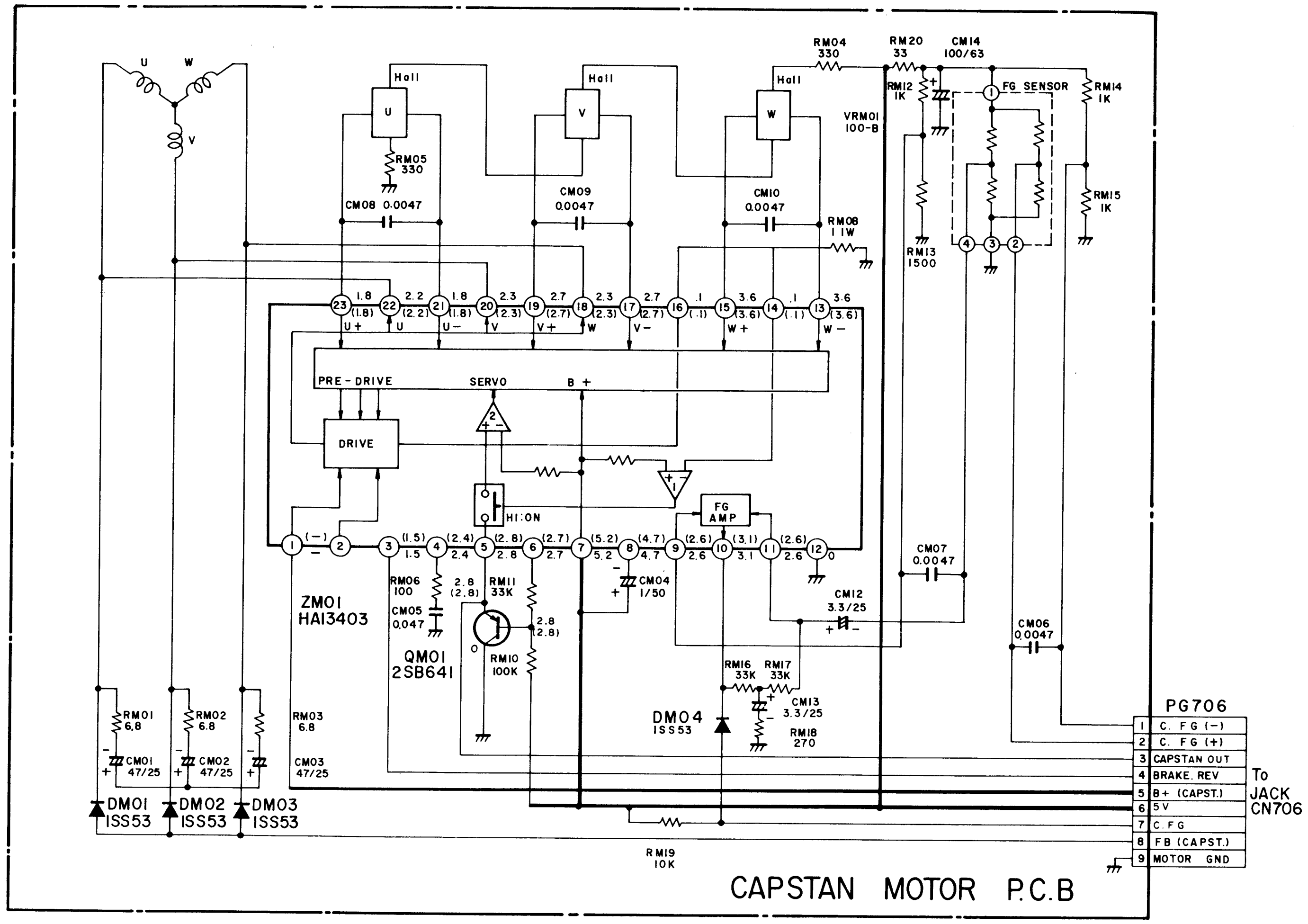
To
JACK
CN706

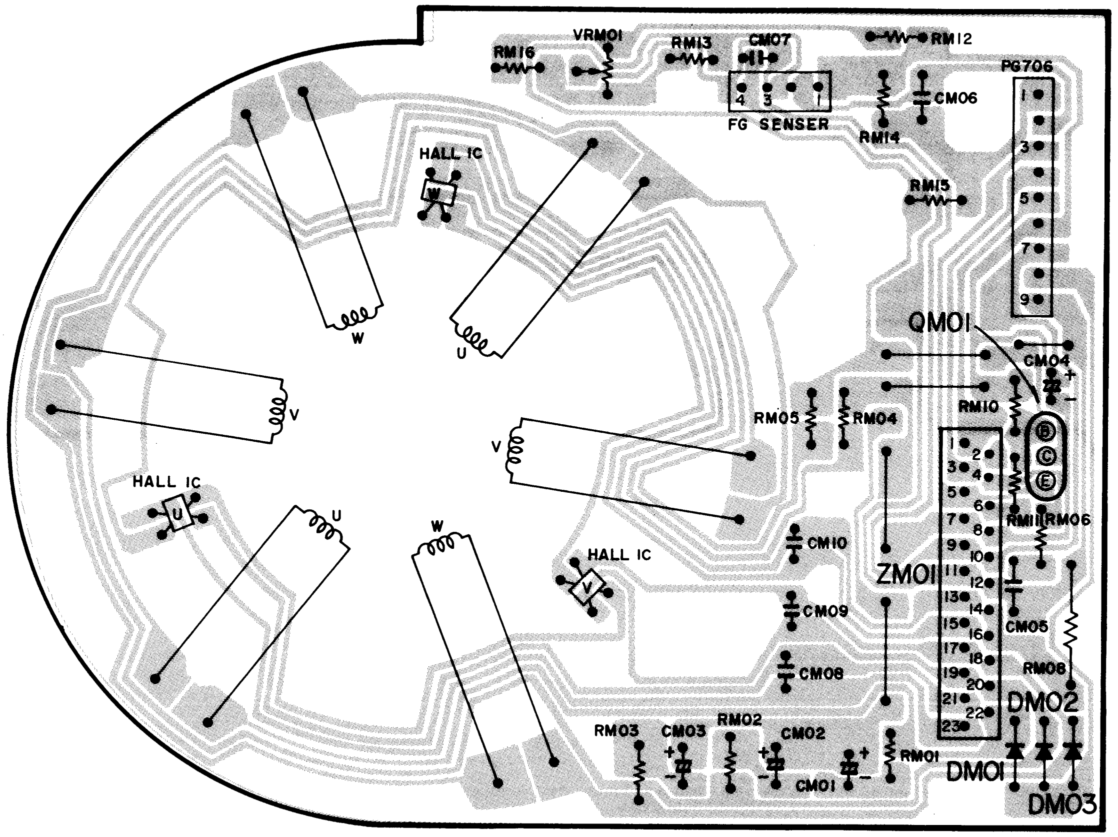
SW


PG 707
REEL OUT
REVERSE
B+ (CAPST.)
5V
REEL CONTROL
V REEL
MOTOR GND
To
JACK
CN707



CAPSTAN MOTOR


Hall
U
V
W
RM05 330
CM08 0.0047
CM09 0.0047
CM10 0.0047
RM08 1 1W
RM04 330
RM20 33
CM14 100/63
RM12 1K
VRM01 100-B
FG SENSOR
RM14 1K
RM15 1K
RM13 1500
PRE-DRIVE
SERVO
B+
DRIVE
HI:ON
FG AMP
ZM01
HA13403
RM06 100
CM05 0.047
QM01
2SB641
RM11 33K
RM10 100K
CM04 1/50
CM07 0.0047
CM12 3.3/25
CM06 0.0047
RM16 33K
RM17 33K
CM13 3.3/25
RM18 270
DM04
1SS53
RM01 6.8
RM02 6.8
RM03 6.8
CM01 47/25
CM02 47/25
CM03 47/25
DM01 1SS53
DM02 1SS53
DM03 1SS53
RM19 10K
PG706
1 C. FG (−)
2 C. FG (+)
3 CAPSTAN OUT
4 BRAKE. REV
5 B+ (CAPST.)
6 5V
7 C. FG
8 FB (CAPST.)
9 MOTOR GND
To
JACK
CN706
CAPSTAN MOTOR P.C.B


RM16
VRM01
RM13
CM07
RM12
FG SENSER
RM14
CM06
PG706
HALL IC
W
U
V
RM15
QM01
CM04
RM05
RM04
RM10
RM11
RM06
CM10
CM09
CM08
ZM01
CM05
RM08
DM02
RM03
CM03
RM02
CM02
CM01
RM01
DM01
DM03

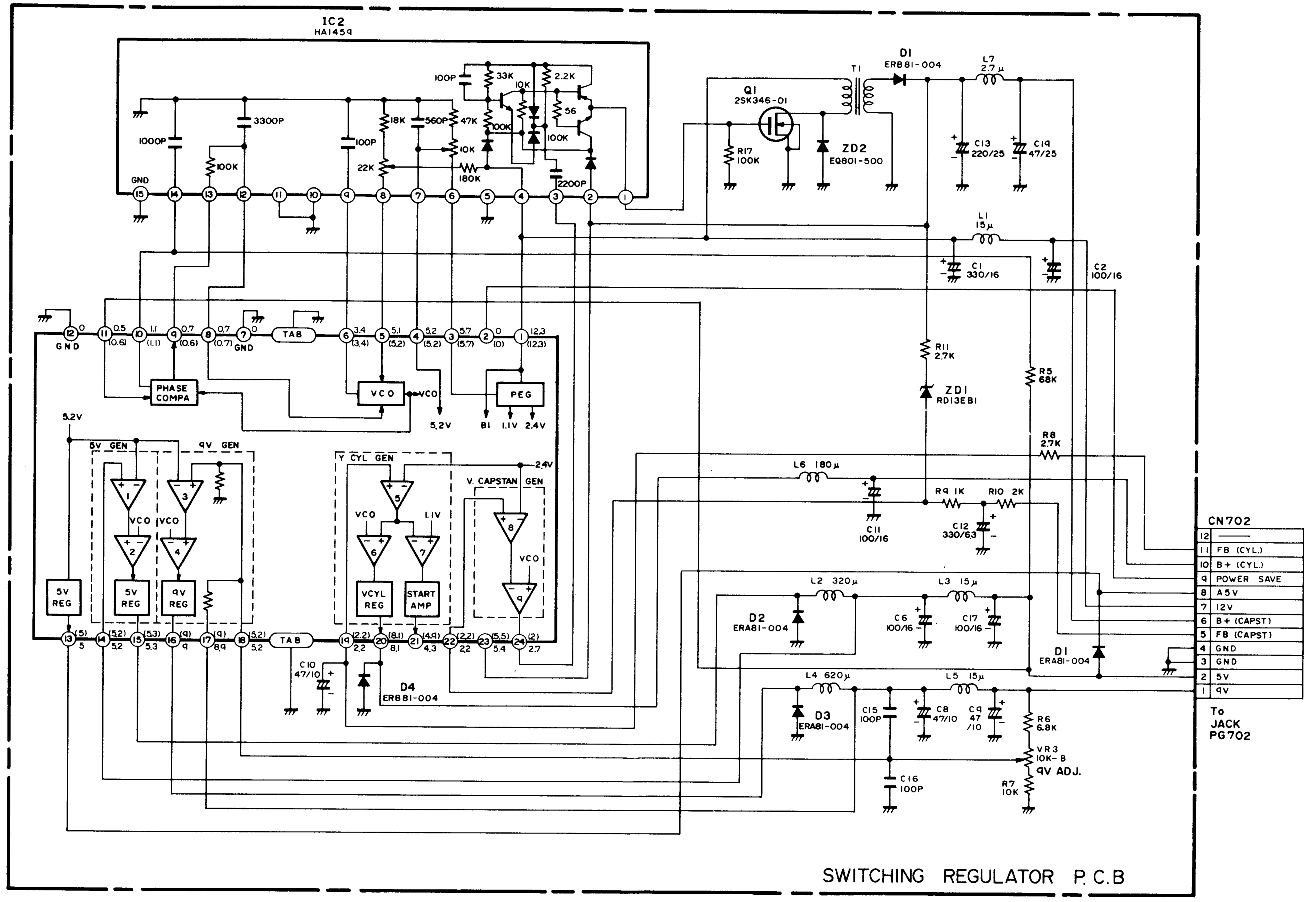
CAPSTAN MOTOR P.C.B

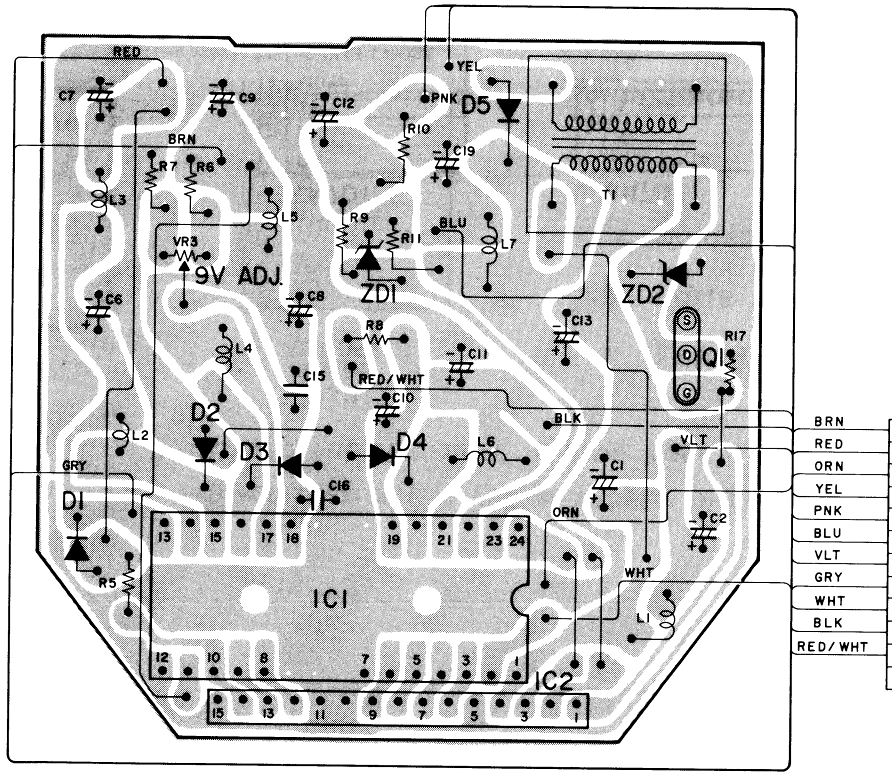
	PG706
1	C. FG(−)
2	C. FG(+)
3	CAPSTAN OUT
4	BRAKE . REV.
5	B+(CAPST.)
6	5V
7	C. FG
8	FB (CAPST.)
9	MOTOR GND

To
JACK
CN706

SWITCHING REGULATOR

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		

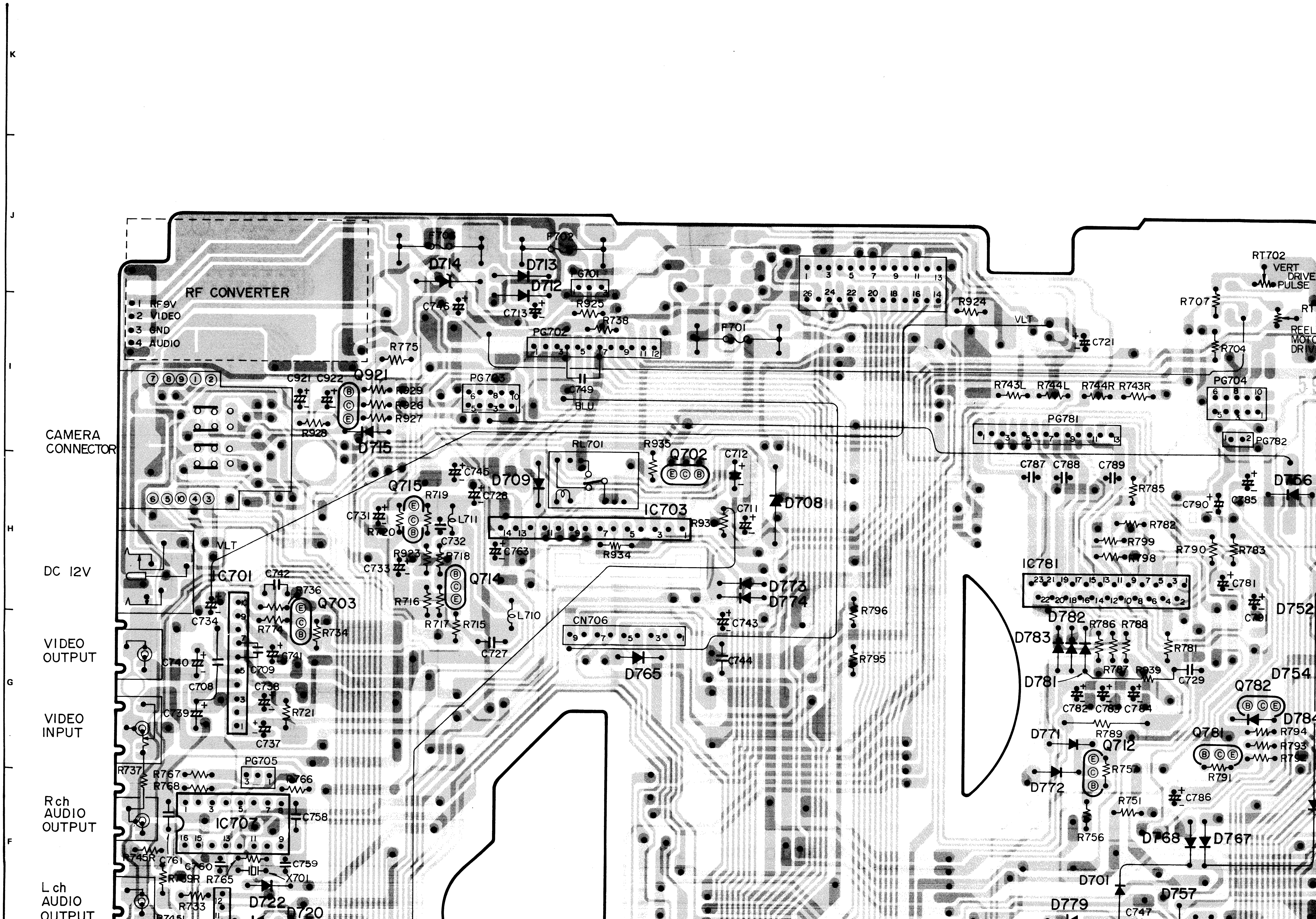

IC2
HA1459
Q1
2SK346-01
T1
D1
ERB81-004
L7
2.7μ
C13 220/25
C14 47/25
R17 100K
ZD2
EQ801-500
L1
15μ
C1 330/16
C2 100/16
R11 2.7K
ZD1
RD13EB1
R5 68K
R8 2.7K
PHASE COMPA
VCO
PEG
5V GEN
9V GEN
CYL GEN
V. CAPSTAN GEN
5V REG
9V REG
VCYL REG
START AMP
L6 180μ
C11 100/16
R9 1K
R10 2K
C12 330/63
L2 320μ
D2
ERA81-004
C6 100/16
L3 15μ
C17 100/16
D1
ERA81-004
L4 620μ
D3
ERA81-004
C15 100P
C8 47/10
L5 15μ
C9 47/10
R6 6.8K
VR3 10K-B
9V ADJ.
R7 10K
C16 100P
C10 47/10
D4
ERB81-004
CN702
12
11 FB (CYL)
10 B+ (CYL)
9 POWER SAVE
8 A5V
7 12V
6 B+ (CAPST)
5 FB (CAPST)
4 GND
3 GND
2 5V
1 9V
To
JACK
PG702
SWITCHING REGULATOR P.C.B

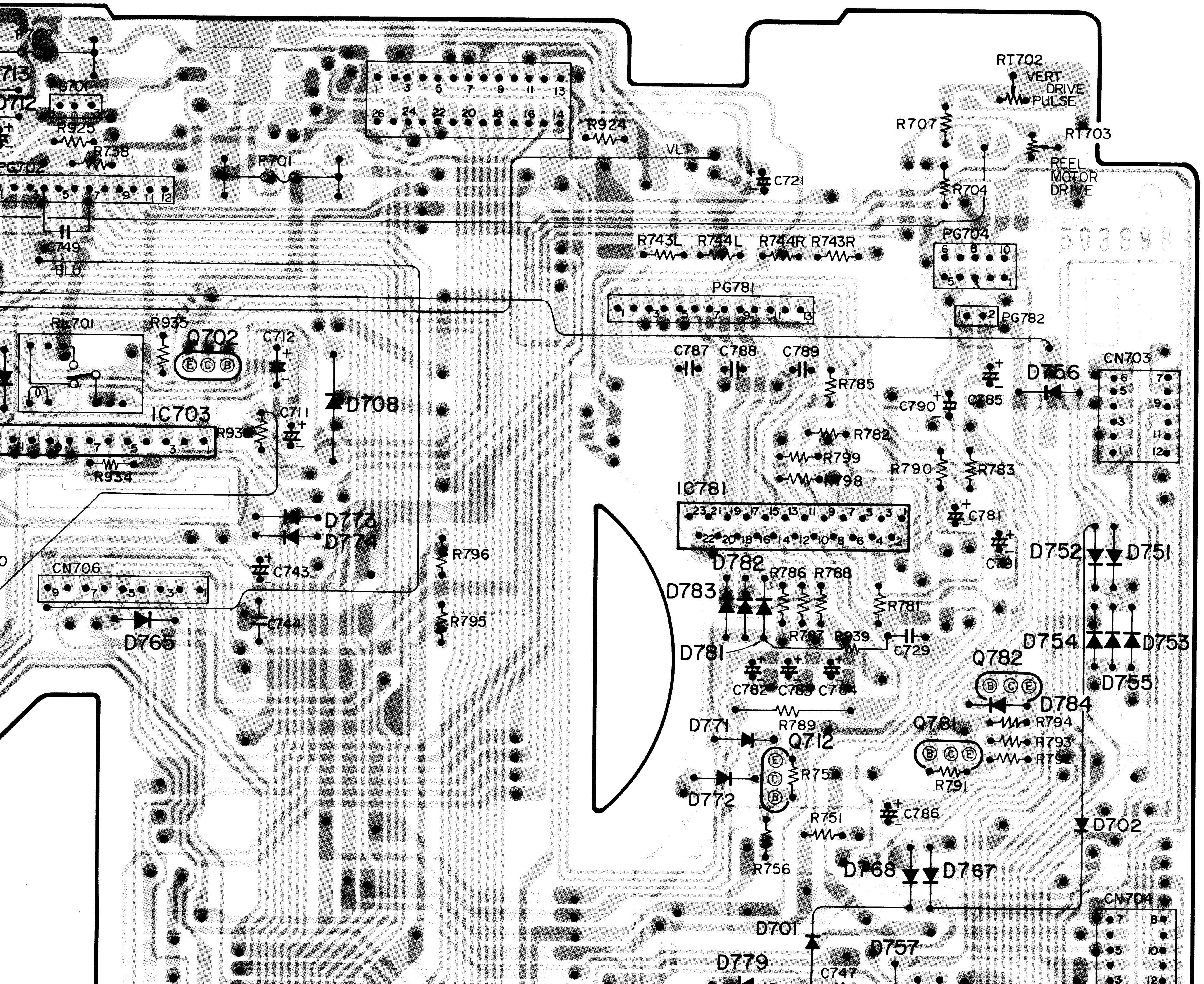

RED
C7
C9
C12
YEL
PNK
D5
BRN
R7
R6
R10
C19
T1
L3
VR3
9V ADJ.
L5
R9
R11
BLU
L7
C6
C8
ZD1
ZD2
L4
R8
C13
Q1
R17
C15
RED/WHT
C11
C10
D2
D3
D4
L6
BLK
C1
VLT
L2
GRY
D1
C16
C2
ORN
WHT
R5
IC1
L1
IC2
BRN
RED
ORN
YEL
PNK
BLU
VLT
GRY
WHT
BLK
RED/WHT

SWITCHING REGULATOR P.C.B

	CN702
1	9V
2	5V
3	GND
4	GND
5	FB (CAPST)
6	B+(CAPST)
7	12V
8	A5V
9	POWER SAVE
10	B+(CYL)
11	FB(CYL)
12	——

To
JACK
PG702


K
J
I
H
G
F
RF CONVERTER
1 RF9V
2 VIDEO
3 GND
4 AUDIO
CAMERA CONNECTOR
DC 12V
VIDEO OUTPUT
VIDEO INPUT
Rch AUDIO OUTPUT
Lch AUDIO OUTPUT
F701
F702
F704
D714
D713
D712
PG701
C746
C713
R925
R738
PG702
R775
C921
C922
Q921
R929
R926
R927
R928
D715
PG703
C749
BLU
RL701
R935
Q702
C712
D708
C745
D709
C728
Q715
R719
L711
C731
R720
IC703
R93
C711
C732
R923
R718
C763
R934
C733
Q714
VLT
IC701
C742
R736
Q703
R774
R734
C734
R716
R717
R715
L710
C727
CN706
D773
D774
C743
C744
D765
C740
C709
C741
C708
C738
R721
C739
C737
PG705
R737
R767
R768
R766
IC707
C758
C759
R745R
C761
C760
X701
R739R
R765
D722
R733
D720
R745L
P701
R924
VLT
C721
RT702
VERT DRIVE PULSE
R707
R704
REEL MOTOR DRIVE
R743L
R744L
R744R
R743R
PG704
PG781
PG782
C787
C788
C789
R785
C790
C785
D756
R782
R799
R798
R790
R783
IC781
C781
D752
R796
R795
D782
R786
R788
D783
R781
D781
R787
R939
C729
D754
C782
C783
C784
Q782
D784
R794
R793
R789
D771
Q712
Q781
R791
R757
D772
C786
R751
R756
D768
D767
D701
D757
D779
C747


P702
713
0712
PG701
R925
R738
PG702
P701
C749
BLU
RL701
R935
Q702
E C B
C712
C711
D708
IC703
R93
R934
D773
D774
C743
CN706
9 7 5 3 1
C744
D765
R796
R795
1 3 5 7 9 11 13
26 24 22 20 18 16 14
R924
VLT
C721
RT702
VERT DRIVE PULSE
R707
RT703
REEL MOTOR DRIVE
R704
R743L
R744L
R744R
R743R
PG704
PG781
PG782
593698
C787
C788
C789
R785
C790
C785
D756
CN703
R782
R799
R798
R790
R783
C781
IC781
D782
D783
R786
R788
R781
D781
R787
R939
C729
C782
C783
C784
D752
D751
C791
D754
D753
D755
Q782
B C E
D784
R794
R793
R792
Q781
R791
D771
R789
Q712
R757
D772
R751
R756
C786
D702
D768
D767
D701
D757
D779
C747
CN704

CN701

1	PB
2	LP
3	SP
4	MUTE
5	A.DUB CROSS
6	GND
7	L ch AUDIO
8	R ch AUDIO

To
AUDIO
PG405

CN704

1	LP
2	——
3	SP/LP
4	A5V
5	CYL.FG
6	BRAKE.REW
7	GND
8	5V
9	V.DUB
10	CYL.SERVO
11	V.DRV.ADD
12	REC
13	CTL PULSE
14	SP

To SERVO
PG504

CN707

1	REEL OUT
2	REVERSE
3	+B CAPST
4	5V
5	REEL CONTROL
6	V REEL
7	MOTOR GND

To
REEL MOTOR
PG707

CN710

1	REMOTE
2	$\overline{\text{POWER SW ON}}$
3	CAMERA
4	$\overline{\text{C.PAUSE}}$
5	$\overline{\text{R.POWER}}$
6	TIME ON
7	$\overline{\text{READY 1}}$

CN702

1	OSC STOP
2	9V
3	A.DUB

To
AUDIO
PG406

CN705

1	——
2	CAPST-SERVO
3	C.FG (−)
4	C.FG (+)
5	C.FG
6	SLOW SPEED
7	FRAME ADV
8	SLOW
9	CTL INHIBIT
10	SYNC
11	VERT. DRIVE
12	SLOW TRACK
13	PAUSE
14	TRICK

To
SERVO
PG502

CN708

1	SAVE
2	REC
3	SLACK REMOVE
4	$\overline{\text{REVERSE}}$
5	CYL LOCK
6	SP
7	$\overline{\text{CTL PALSE}}$
8	$\overline{\text{REC CHECK}}$
9	V.DUB
10	CYL ON
11	GND
12	DATE BACK-UP
13	OSC STOP
14	MUTE

To
SYSTEM
CONTROL
PG803

CN713

1	9V
2	GND
3	12V
4	END LED

To
LOADING
MOTOR

CN703

1	END LED
2	SW 25Hz
3	REVERSE
4	TACH PULSE
5	LOAD
6	4.43MHz
7	PAUSE
8	SEARCH
9	CYL . LOCK
10	$\overline{\text{CYL . ON}}$
11	ASSEMBLE
12	$\overline{\text{REC CHECK}}$

To
SERVO
PG503

CN706

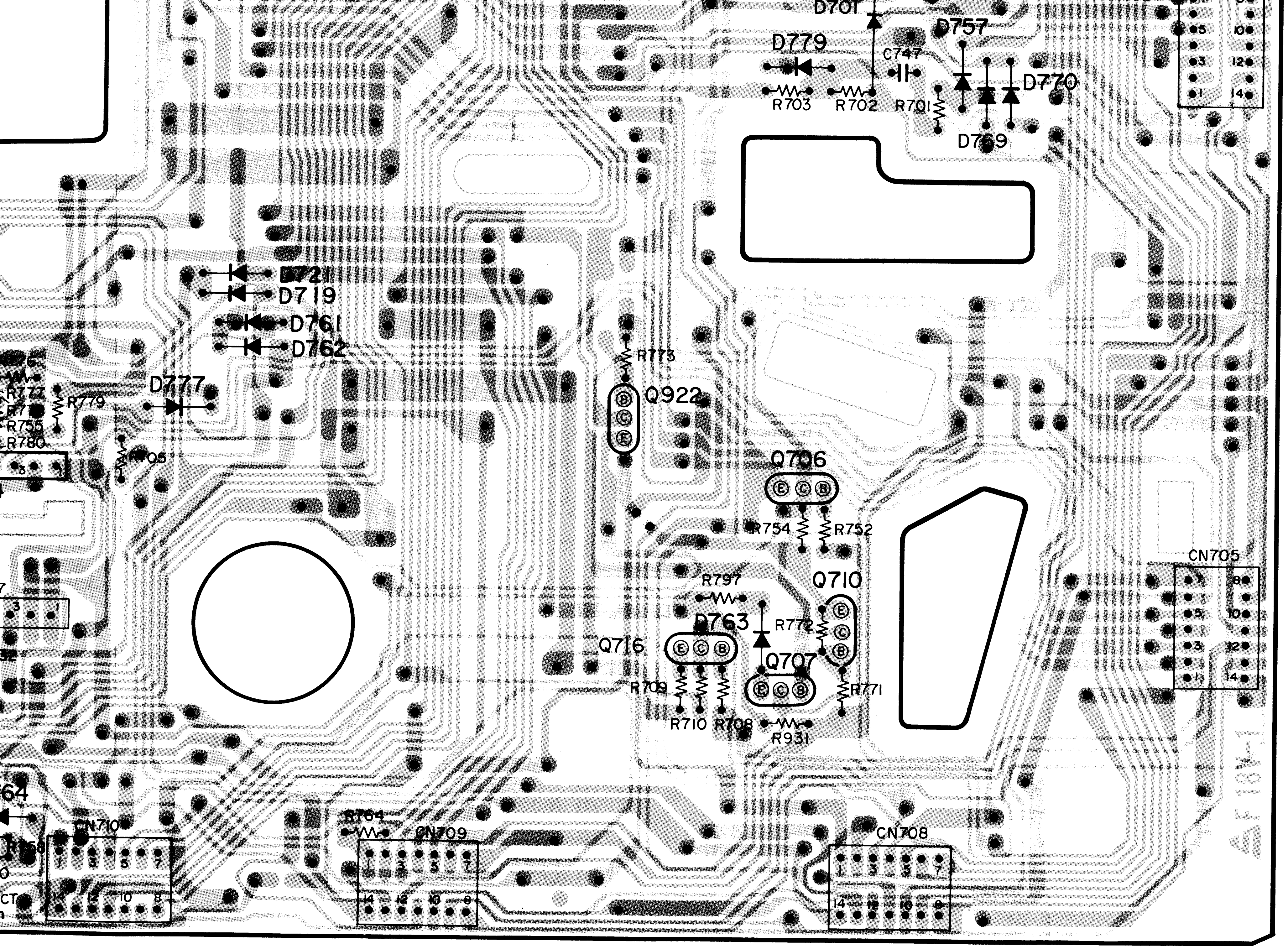
1	C.FG (−)
2	C.FG (+)
3	CAPSTAN OUT
4	BRAKE REV
5	B+ (CAPST)
6	5V
7	C.FG
8	FB (CAPST)
9	MOTOR GND

To
CAPSTAN
MOTOR
PG706

CN709

1	5V
2	A5V
3	PB
4	A.DUB
5	CURRENT UP
6	SEARCH
7	SLOW
8	FRAME ADV
9	LOAD
10	PAUSE
11	AC12V
12	REEL DRIVE
13	FF/REW
14	NO TAB

To
SYSTEM
CONTROL
PG802


D701
D779
D757
C747
D770
R703
R702
R701
D769
D721
D719
D761
D762
D777
R779
R755
R780
R705
R773
Q922
Q706
R754
R752
CN705
R797
Q710
D763
R772
Q716
Q707
R709
R771
R710
R708
R931
CN710
R764
CN709
CN708
CT
F 18V-1

JACK P.C.B

4	C.PAUSE
5	R.POWER
6	TIME ON
7	READY 1
8	SLOW SPEED
9	12V
10	C.STAND-BY
11	DATA
12	ACKGT
13	READY 2
14	REMOTE GND

To
SYSTEM
CONTROL
PG801

4	END LED

To
LOADING
MOTOR
PG901

CONTROL
PG802

CN711

1	Rch AUDIO
2	GND

To
AUDIO
PG404

CN712

1	Lch AUDIO
2	GND

To
AUDIO
PG402

PG701

1	BATT. SENSOR
2	GND
3	12V

To
INTERNAL
BATTERY

PG702

1	9V
2	5V
3	GND
4	GND
5	FB (CAPST)
6	B+ (CAPST)
7	12V
8	A5V
9	POWER SAVE
10	B+ (CYL)
11	FB (CYL)
12	—

To
SWITCHING
REGULATOR
CN702

1	12V/17V
2	GND
3	AUDIO GND
4	AUDIO IN CH-1
5	AUDIO IN CH-2
6	AUDIO OUT CH-1
7	AUDIO OUT CH-2
8	AUDIO GND
9	—
10	VIDEO GND
11	VIDEO OUT
12	VIDEO GND
13	VIDEO IN
14	—
15	DATA
16	ACK GT
17	READY 2
18	READY 1
19	REC ENABLE
20	TIMER IN
21	R.POWER
22	RF CONT
23	VTR OUT
24	BP+ CAMERA
25	BATT SENSE
26	SLOW TRACK

To 26PIN
TUNER
CONNECTOR

PG703

1	SECAM
2	REC 9V
3	4.43MHz
4	PB 9V
5	CURRENT UP
6	VIDEO
7	GND
8	COLOUR
9	VIDEO
10	5V

To Y/CHROMA
CN202

PG704

1	SW25Hz
2	LOAD.V.DRV
3	PAUSE
4	TRICK
5	—
6	—
7	LP
8	SP
9	SYNC
10	—

To Y/CHROMA
CN201

PG781

1	U+
2	U−
3	U
4	V
5	W
6	W+
7	GND
8	V+
9	V−
10	HALL BIAS
11	W−
12	CYL FG
13	CYL FG

To
CYLINDER
MOTOR
CN781

PG782

1	TACH PULSE
2	TACH BIAS

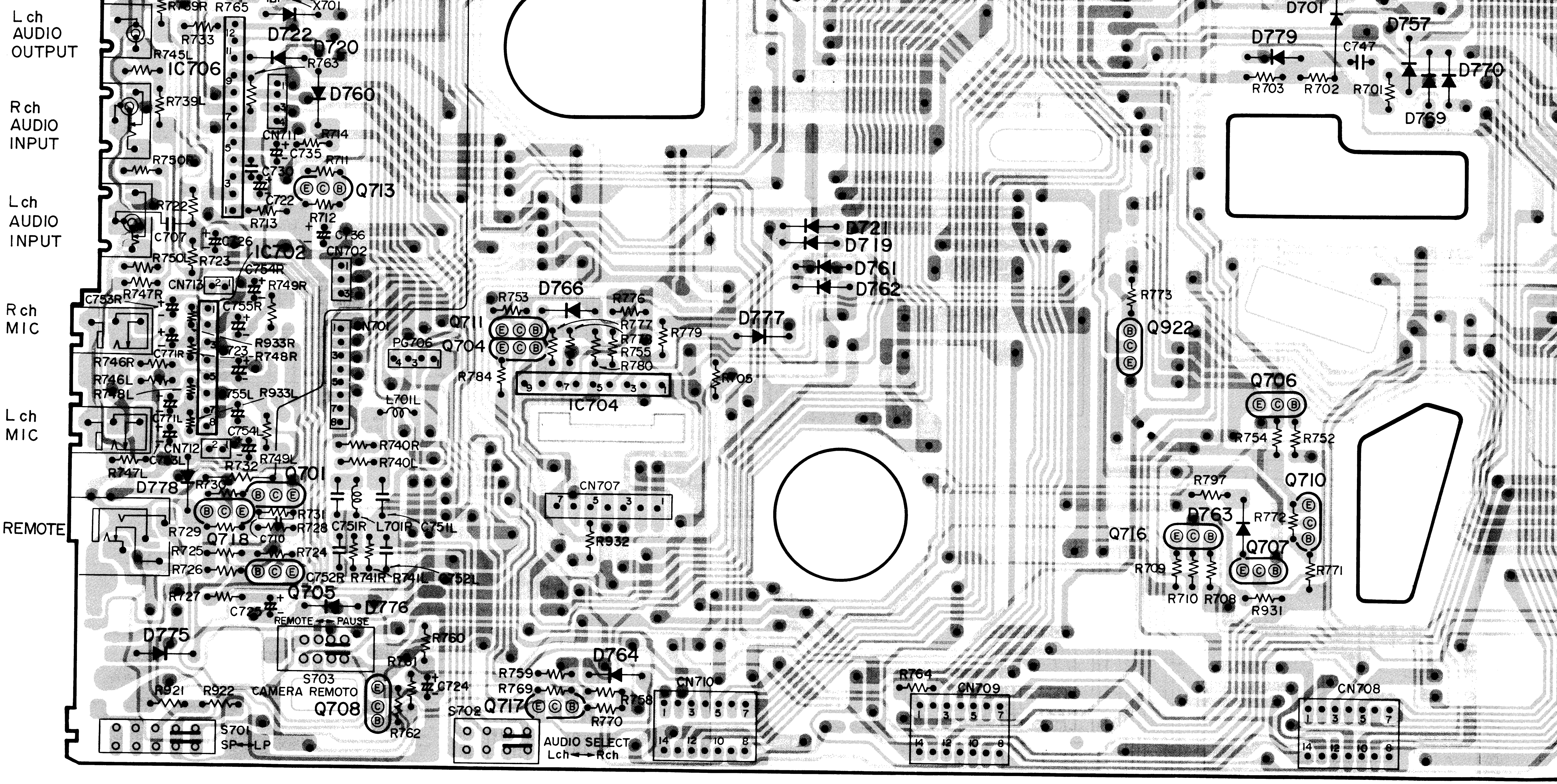
To CYLINDER
MOTOR
CN782

▨ Soldered side

▨ Parts side

● Throgh-hole

※VOLTAGES ARE MEASURED IN PLAY MODE,
AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


Lch AUDIO OUTPUT
Rch AUDIO INPUT
Lch AUDIO INPUT
Rch MIC
Lch MIC
REMOTE
R739R
R765
X701
R733
D722
D720
R745L
R763
IC706
D760
R739L
CN711
R714
C735
R750R
C730
R711
Q713
C722
R722
R712
R713
C736
C707
C726
IC702
CN702
R750L
R723
C754R
CN713
R749R
C753R
R747R
C755R
CN701
R933R
C723
R748R
C771R
R746R
R746L
R748L
C755L
R933L
PG706
C754L
C771L
CN712
R749L
R740R
R740L
C753L
R747L
R732
Q701
D778
R730
R731
R728
R729
Q718
C710
C751R
L701R
C751L
L701L
R725
R724
R726
C752R
R741R
R741L
C752L
R727
Q705
C725
D776
REMOTE ↔ PAUSE
D775
S703
R760
R761
C724
R921
R922
CAMERA REMOTO
Q708
R762
S701
SP ↔ LP
S702
Q717
R759
R769
D764
R758
R770
AUDIO SELECT
Lch ↔ Rch
CN710
R753
D766
R776
Q711
Q704
R777
R778
R755
R780
R779
R784
IC704
CN707
R932
R705
D721
D719
D761
D762
D777
R773
Q922
CN709
R764
Q706
R754
R752
R797
D763
R772
Q710
Q716
Q707
R709
R710
R708
R771
R931
CN708
D701
D779
C747
D757
D770
R703
R702
R701
D769

JACK PA

E
D
C
B
A

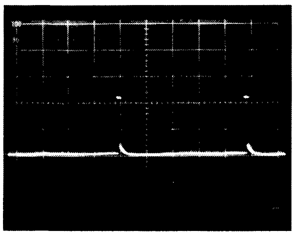
1 2 3 4 5 6 7 8

74 JACK
JACK 75

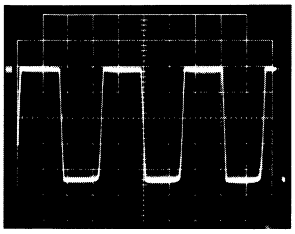
SERVO WAVEFORMS

[IC501]

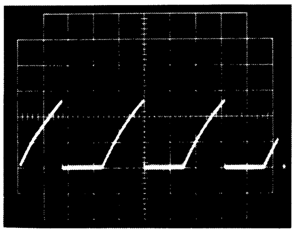
① PIN ⑥ PLAY
2V/10ms. div.



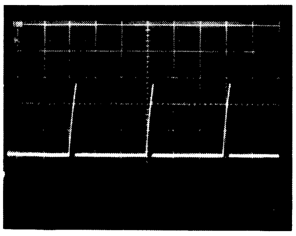
② PIN ⑧ REC/PLAY
1V/0.2ms. div.



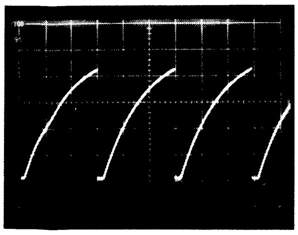
③ PIN ⑨ REC/PLAY
1V/0.2ms. div.



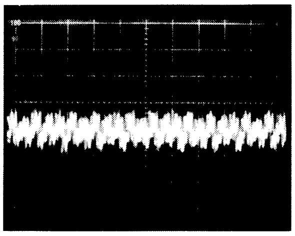
④ PIN ⑩ REC/PLAY
1V/0.2ms. div.



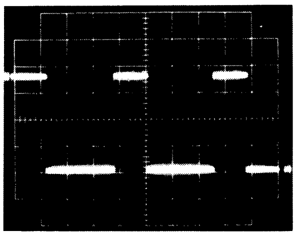
⑤ PIN ⑪ REC/PLAY
1V/0.2ms. div.



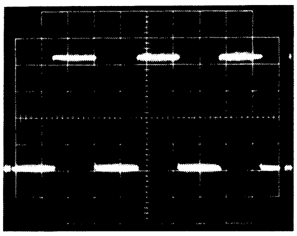
⑥ PIN ⑭ PLAY
50mV/5ms. div.



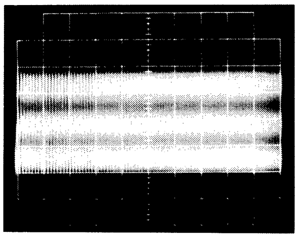
⑦ PIN ㉚ REC
5V/0.5ms. div.



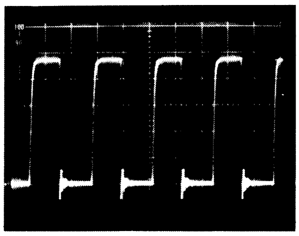
⑧ PIN ㉜ REC
1V/0.2ms. div.



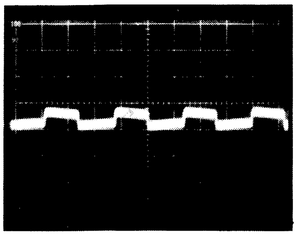
⑨ PIN ㉟ REC
10V/2μs. div.



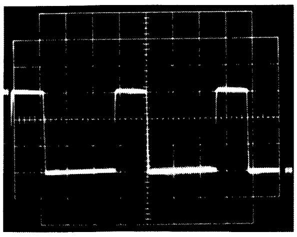
⑩ PIN ㉟ PLAY
2V/0.5μs. div.



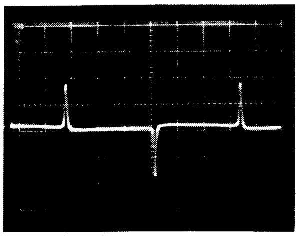
⑪ PIN ㊱ PLAY
50mV/0.5μs. div.



⑫ PIN ㊷ REC
1V/10ms. div.

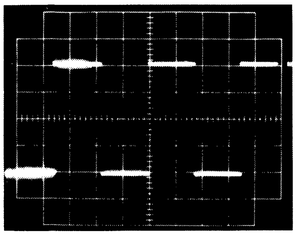


⑬ PIN ㊷ PLAY
1V/5ms. div.

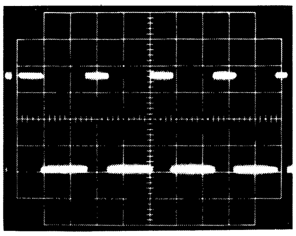


[IC502]

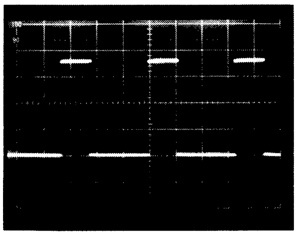
⑭ PIN ② REC
1V/0.5ms. div.



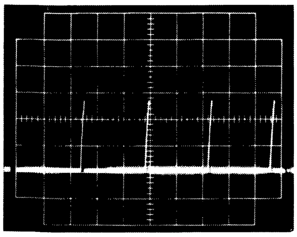
⑮ PIN ⑥ REC
5V/0.5ms. div.



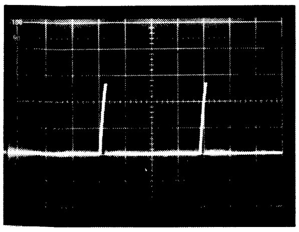
⑯ PIN ⑥ PLAY
5V/0.5ms. div.



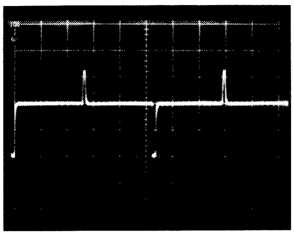
⑰ PIN ⑫ REC
1V/10ms. div.



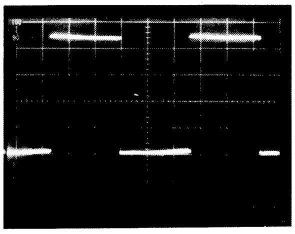
⑱ PIN ⑫ PLAY
1V/10ms. div.



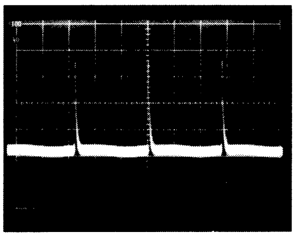
⑲ PIN ⑭ REC/PLAY
1V/5ms. div.



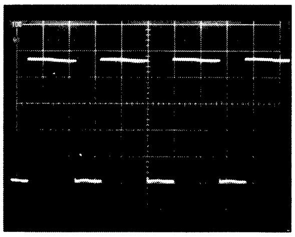
⑳ PIN ⑮ REC
1V/5ms. div.



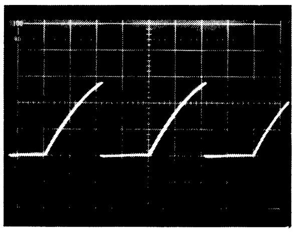
㉑ PIN ⑰ REC/PLAY
2V/5ms. div.



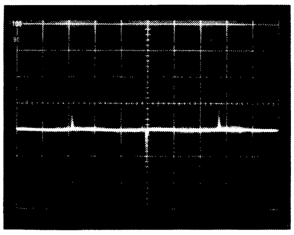
㉒ PIN ⑱ REC
1V/10ms. div.



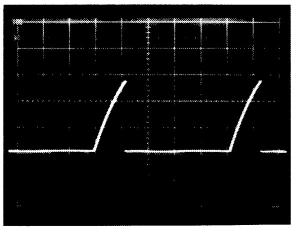
㉓ PIN ⑲ PLAY
1V/10ms. div.



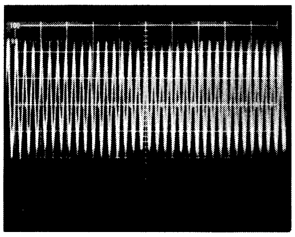
㉔ PIN ㉑ PLAY
1V/5ms. div.



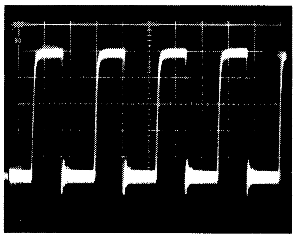
㉕ PIN ㉒ REC/PLAY
1V/5ms. div.



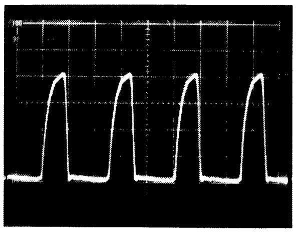
㉖ PIN ㉕ REC
50mV/0.5μs. div.



㉗ PIN ㉗ REC
2V/0.5μs. div.

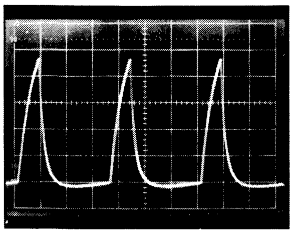


㉘ PIN ㉙ REC
1V/0.2μs. div.

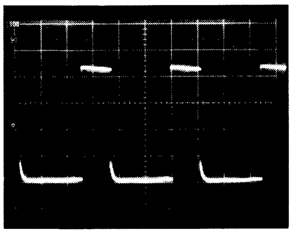


[IC503]

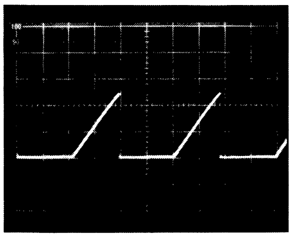
㉙ PIN ② PLAY
5V/50ms. div.



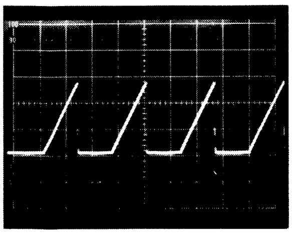
㉚ PIN ③ REC
1V/10ms. div.



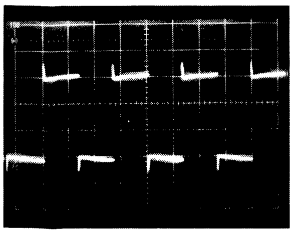
㉛ PIN ⑩ PLAY
1V/10ms. div.



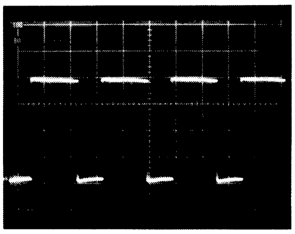
㉜ PIN ⑭ REC/PLAY
1V/10ms. div.



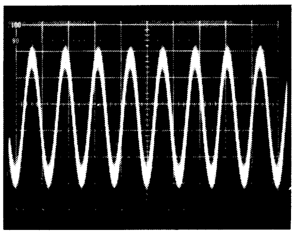
㉝ PIN ⑱ REC
1V/10ms. div.



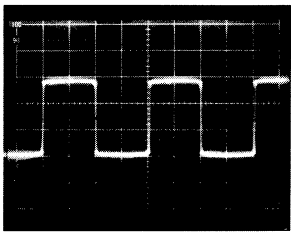
㉞ PIN ㉑ REC
1V/10ms. div.



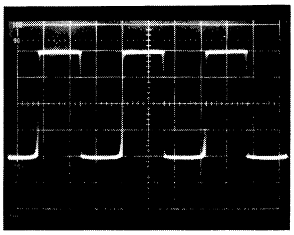
㉟ PIN ㉗ REC/PLAY
10mV/0.5ms. div.



㊱ PIN ㉘ REC/PLAY
5V/0.1ms. div.

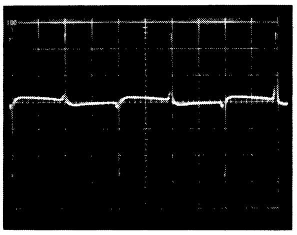


㊲ PIN ㉙ REC/PLAY
1V/0.2ms. div.

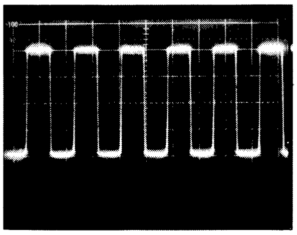


[IC504]

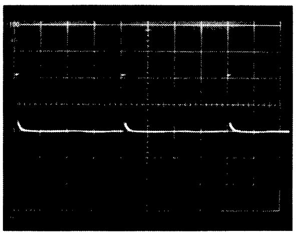
㊳ PIN ① PLAY
5V/10ms. div.



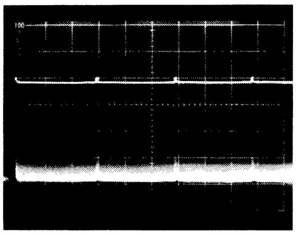
㊴ PIN ② REC/PLAY
1V/0.2ms. div.



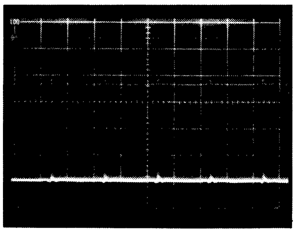
㊵ PIN ③ REC/PLAY
2V/10ms. div.



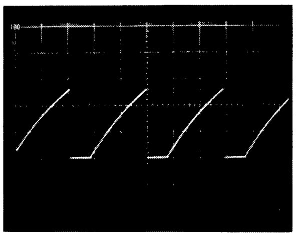
㊶ PIN ⑮ REC
1V/2ms. div.



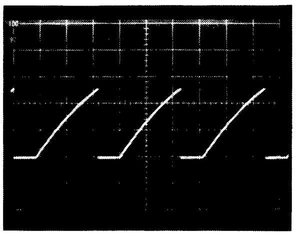
㊷ PIN ⑮ PLAY (STILL)
1V/10ms. div.



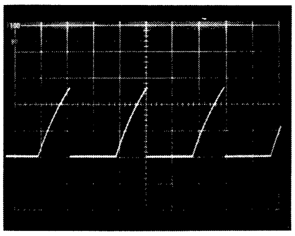
㊸ PIN ⑰ PLAY
1V/10μs. div.



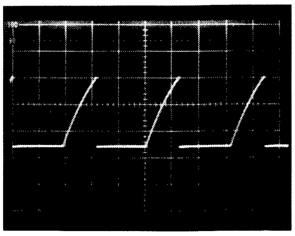
㊹ PIN ⑰ PLAY (SEARCH)
1V/20μs. div.



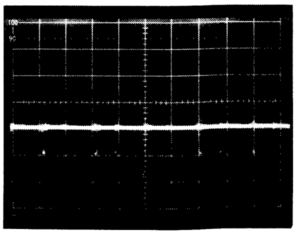
㊺ PIN ⑱ PLAY
1V/10μs. div.



㊻ PIN ⑱ PLAY (SERCH)
1V/20μs. div.

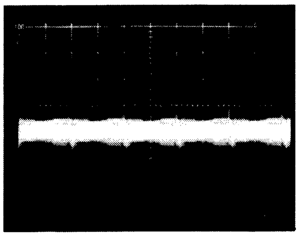


㊼ PIN ⑳ PLAY (SEARCH)
2V/10ms. div.

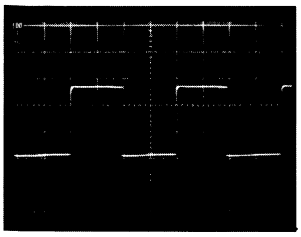


[IC504]

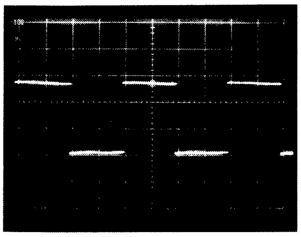
㊽ PIN ㉔ REC
50mV/10μs. div.



㊾ PIN ㉗ PLAY (STILL)
2V/10ms. div.

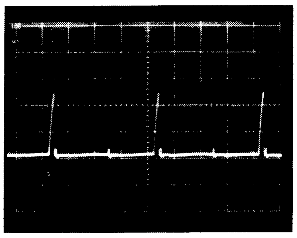


㊿ PIN ㉚ PLAY (SLOW)
1V/10ms. div.

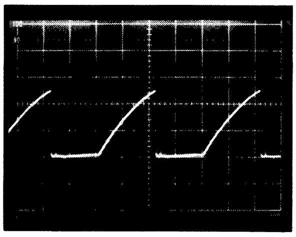


[OTHER]

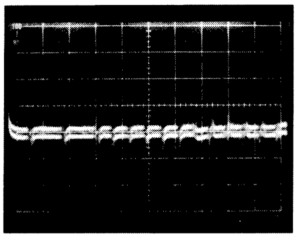
(51) TP505, PG505-① REC
1V/10ms. div.



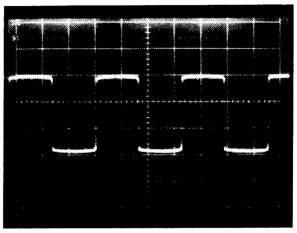
(52) TP503, PG505-② PLAY
1V/10ms. div.



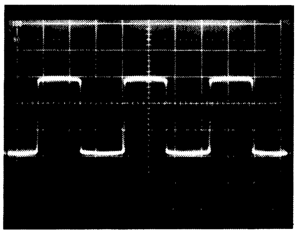
(53) TP501, PG505-③ PLAY
50V/20μs. div.

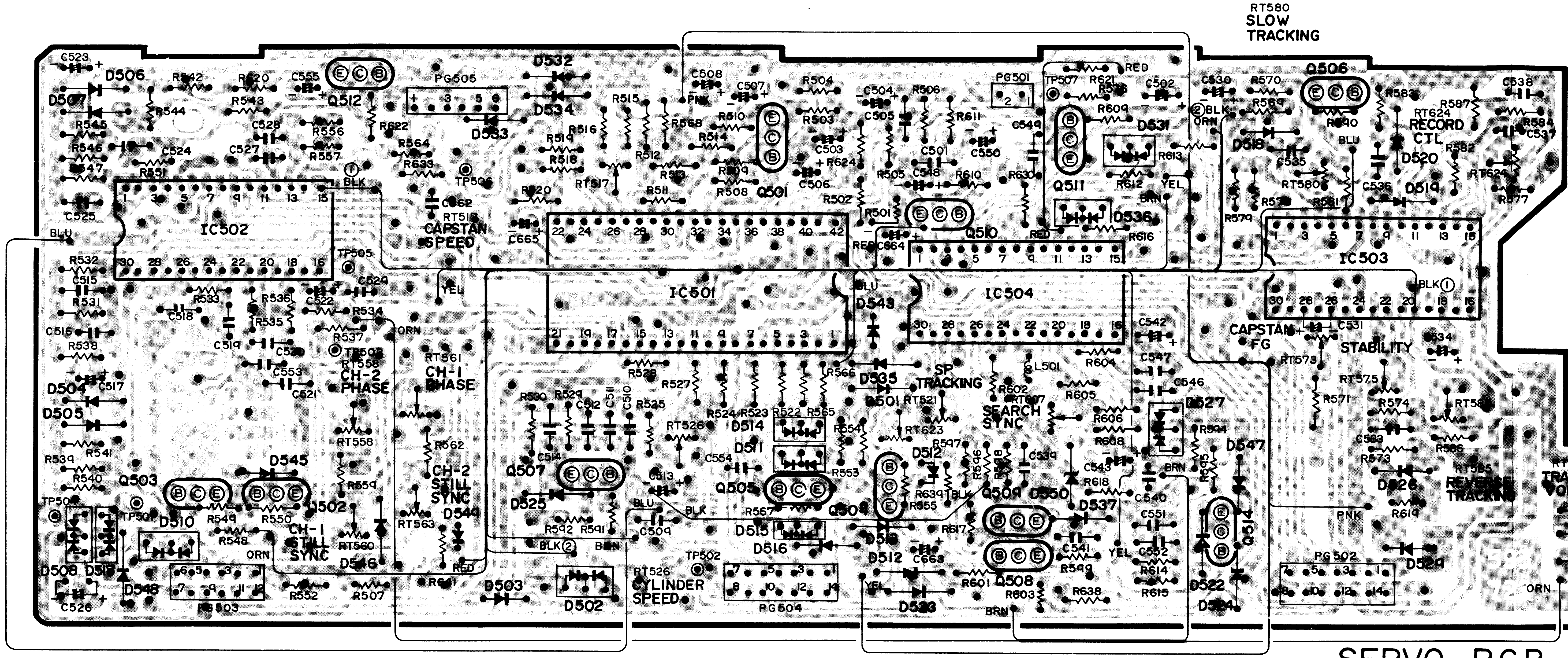


(54) TP504, PG505-⑤ PLAY
5V/0.2ms. div.



(55) TP506, PG505-⑥ PLAY
5V/0.2ms. div.




RT580
SLOW
TRACKING
IC502
IC501
IC503
IC504
Q501
Q503
Q505
Q506
Q507
Q508
Q509
Q510
Q511
Q512
Q514
RT513
CAPSTAN
SPEED
RT558
CH-2
PHASE
RT561
CH-1
PHASE
RT562
CH-2
STILL
SYNC
RT560
CH-1
STILL
SYNC
RT526
CYLINDER
SPEED
SP
TRACKING
RT607
SEARCH
SYNC
RT624
RECORD
CTL
CAPSTAN
FG
RT573
STABILITY
RT585
REVERSE
TRACKING
PG501
PG502
PG503
PG504
PG505
BLU
YEL
ORN
RED
BRN
BLK
PNK

SERVO P.C.B

Soldered side   Parts side   ● Through-hole

IC502

30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
2.6 (2.6)	2.6 (2.6)	0 (0)	0.2 (0.2)	4.8 (4.8)	0.2 (0.2)	5.0 (5.0)	0 (0)	0.3 (0.3)	0 (0)	0 (0)	0.6 (0.6)	2.7 (2.7)	0.2 (0.2)	5.0 (5.0)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2.4 (2.4)	2.4 (2.4)	0 (0)	1.7 (1.7)	2.3 (2.3)	1.3 (1.3)	5.0 (5.0)	1.3 (1.3)	0 (0)	2.6 (2.6)	1.3 (1.3)	0.2 (0.2)	0.2 (0.2)	1.3 (1.3)	0 (0)

IC504

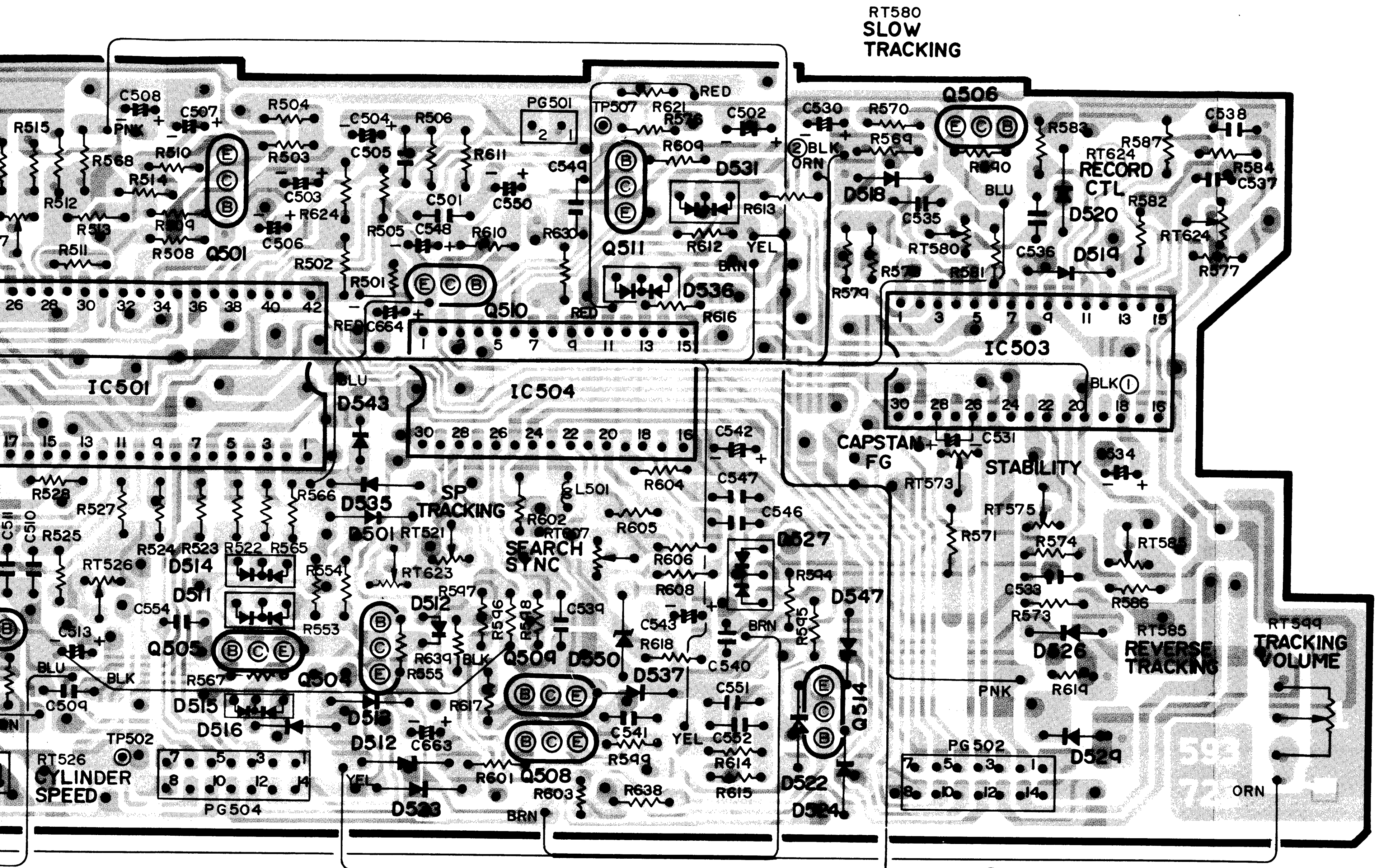
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
1.2 (4.6)	2.6 (2.6)	2.5 (0)	2.6 (0)	0 (0)	0 (0)	2.4 (2.4)	5.2 (5.2)	2.8 (2.8)	5.0 (4.9)	2.1 (5.2)	2.2 (0)	0.9 (0)	1.2 (0)	0 (0)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2.3 (2.3)	3.2 (3.2)	1.3 (1.3)	2.6 (2.6)	2.6 (2.6)	0 (0)	0 (0)	0.3 (0.3)	0 (0)	0 (0)	0 (0)	0 (0)	2.7 (2.7)	0.6 (0.6)	0.6 (0.6)

IC503

30	29	28	27	26	25	24	23	22	21	20	19
5.2 (5.2)	3.2 (3.2)	2.4 (2.4)	2.4 (2.4)	2.4 (2.4)	2.8 (2.8)	1.4 (1.4)	0 (0)	0 (0)	2.4 (2.4)	2.2 (2.2)	0
1	2	3	4	5	6	7	8	9	10	11	12
0 (0)	0.7 (0.7)	1.4 (1.4)	4.4 (4.4)	1.4 (1.4)	1.5 (1.5)	0.2 (0.2)	0 (0)	5.2 (5.2)	0.7 (0.7)	1.8 (1.8)	0

IC501

21	20	19	18	17	16	15	14	13	12	11	10
0 (0)	4.9 (4.9)	0 (0)	0 (0)	0 (0)	2.7 (2.7)	0.1 (0.1)	2.8 (2.8)	2.7 (2.7)	3.2 (3.2)	2.2 (2.2)	0.2 (
22	23	24	25	26	27	28	29	30	31	32	33
0 (0)	0 (0)	0 (0)	2.6 (2.6)	2.6 (2.6)	2.6 (2.6)	2.8 (2.8)	2.7 (2.7)	1.4 (1.4)	0 (0)	2.6 (2.6)	0


RT580
SLOW
TRACKING
C508
PNK
C507
R504
C504
R506
PG501
TP507
R621
RED
R576
C502
C530
R570
Q506
R583
C538
R515
R568
R510
R503
C505
R611
R604
C549
BLK
ORN
R569
RT624
RECORD
CTL
R587
R584
C537
R514
C503
C550
D531
R590
BLU
R512
R513
R624
C501
D518
R582
R509
R508
Q501
C506
R505
C548
R610
R630
R613
C535
D520
RT624
R511
R502
R501
Q511
R612
YEL
RT580
C536
D519
BRN
R578
R581
R577
R579
D536
26
28
30
32
34
36
38
40
42
Q510
RED
R616
RED
C664
1
3
5
7
9
11
13
15
IC503
IC501
BLU
D543
IC504
BLK
30
28
26
24
22
20
18
16
C542
CAPSTAN
FG
C531
STABILITY
C534
RT573
17
15
13
11
9
7
5
3
1
C547
R604
R528
R527
R566
D535
SP
TRACKING
L501
R602
RT607
R605
C546
RT575
C511
C510
R525
D501
RT521
SEARCH
SYNC
R571
D527
RT584
RT526
R524
R523
R522
R565
D514
R554
RT623
R606
R574
R608
R594
D511
R597
D512
R596
R598
C539
C538
D547
C554
C543
R573
R586
C513
R553
R618
R595
BRN
RT585
REVERSE
TRACKING
RT549
TRACKING
VOLUME
Q505
D526
R639
BLK
Q509
D550
C540
BLU
BLK
R567
Q504
R555
D537
R619
C509
D515
D513
R617
C551
Q514
PNK
D516
C541
C552
YEL
D529
TP502
D512
C663
R599
RT526
CYLINDER
SPEED
R614
PG502
R601
Q508
R615
D522
YEL
7
5
3
1
8
10
12
14
R603
R638
D523
D524
ORN
PG504
BRN

SERVO P.C.B

Parts side

● Through-hole

	19	18	17	16
(0)	0.6 (0.6)	2.7 (2.7)	0.2 (0.2)	5.0 (5.0)
	12	13	14	15
1.3)	0.2 (0.2)	0.2 (0.2)	1.3 (1.3)	0 (0)

	19	18	17	16
.2)	2.2 (0)	0.9 (0)	1.2 (0)	0 (0)
	12	13	14	15
(0)	0 (0)	2.7 (2.7)	0.6 (0.6)	0.6 (0.6)

IC503

30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
5.2 (5.2)	3.2 (3.2)	2.4 (2.4)	2.4 (2.4)	2.4 (2.4)	2.8 (2.8)	1.4 (1.4)	0 (0)	0 (0)	2.4 (2.4)	2.2 (2.2)	0 (0)	0.4 (2.4)	0 (0)	0 (0)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0 (0)	0.7 (0.7)	1.4 (1.4)	4.4 (4.4)	1.4 (1.4)	1.5 (1.5)	0.2 (0.2)	0 (0)	5.2 (5.2)	0.7 (0.7)	1.8 (1.8)	0 (0)	0 (0)	0.7 (0.7)	1.8 (1.8)

IC501

21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
0 (0)	4.9 (4.9)	0 (0)	0 (0)	0 (0)	2.7 (2.7)	0.1 (0.1)	2.8 (2.8)	2.7 (2.7)	3.2 (3.2)	2.2 (2.2)	0.2 (0.2)	0.8 (0.8)	3.0 (3.0)	2.7 (2.7)	1.4 (1.4)	0 (0)	0 (0)	0 (0)	4.97 (4.97)	5.23 (5.23
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
0 (0)	0 (0)	0 (0)	2.6 (2.6)	2.6 (2.6)	2.6 (2.6)	2.8 (2.8)	2.7 (2.7)	1.4 (1.4)	0 (0)	2.6 (2.6)	0 (0)	3.1 (3.1)	0.4 (0.4)	0 (0)	2.7 (2.7)	2.6 (2.6)	0.5 (0.5)	1.0 (1.0)	1.7 (1.7)	2.7 (2.7)

Q502

B	0 (5.2)
C	0.4 (0)
E	0 (0)

Q503

E	0 (0)
B	0 (0)
C	0 (0)

Q507

C	0 (0)
E	0 (0)
B	0.2 (0.2)

Q512

E	0 (0)
C	0.1 (1.5)
B	0 (0)

Q504

E	0 (0)
C	4.4 (4.5)
B	0 (0)

Q505

B	0.3 (4.5)
C	4.3 (4.0)
E	0 (0)

Q509

B	0 (0)
C	0 (0)
E	0 (0)

Q508

B	0.6 (0.6)
C	0 (0)
E	0 (0)

Q510

E	2.3 (2.3)
C	5.2 (5.2)
B	0 (0)

Q514

B	3 (3)
C	2.4 (2.4)
E	2.4 (2.4)

Q511

E	0 (0)
C	0 (0)
B	0 (0)

Q501

B	0 (0)
C	0.4 (0)
E	2.8 (2.8)

Q506

E	0 (0)
C	0 (0)
B	0.6 (0.6)

PG501

1	CTL PULSE
2	GND

CTL
HEAD

PG502

1	—
2	CAPST SERVO
3	C. FG(−)
4	C. FG(+)
5	C. FG
6	SLOW SPEED
7	FRAME ADV
8	SLOW
9	CTL INHIBIT
10	SYNC
11	VERT DRIVE
12	SLOW TRACK
13	PAUSE
14	TRICK

To
JACK
CN705

PG503

1	END LED
2	SW 25 Hz
3	REVERSE
4	TACH PULSE
5	LOAD
6	4.43 MHz
7	PAUSE
8	SEARCH
9	CYL LOCK
10	$\overline{\text{CYL ON}}$
11	ASSEMBLE
12	$\overline{\text{REC CHECK}}$

To
JACK
CN703

PG504

1	LP
2	—
3	SP/LP
4	A5V
5	CYL FG
6	BRAKE REW
7	GND
8	5V
9	V. DUB
10	CYL SERVO
11	V. DRV ADD
12	RECORD
13	CTL PULSE
14	SP

To
JACK
CN704

PG505

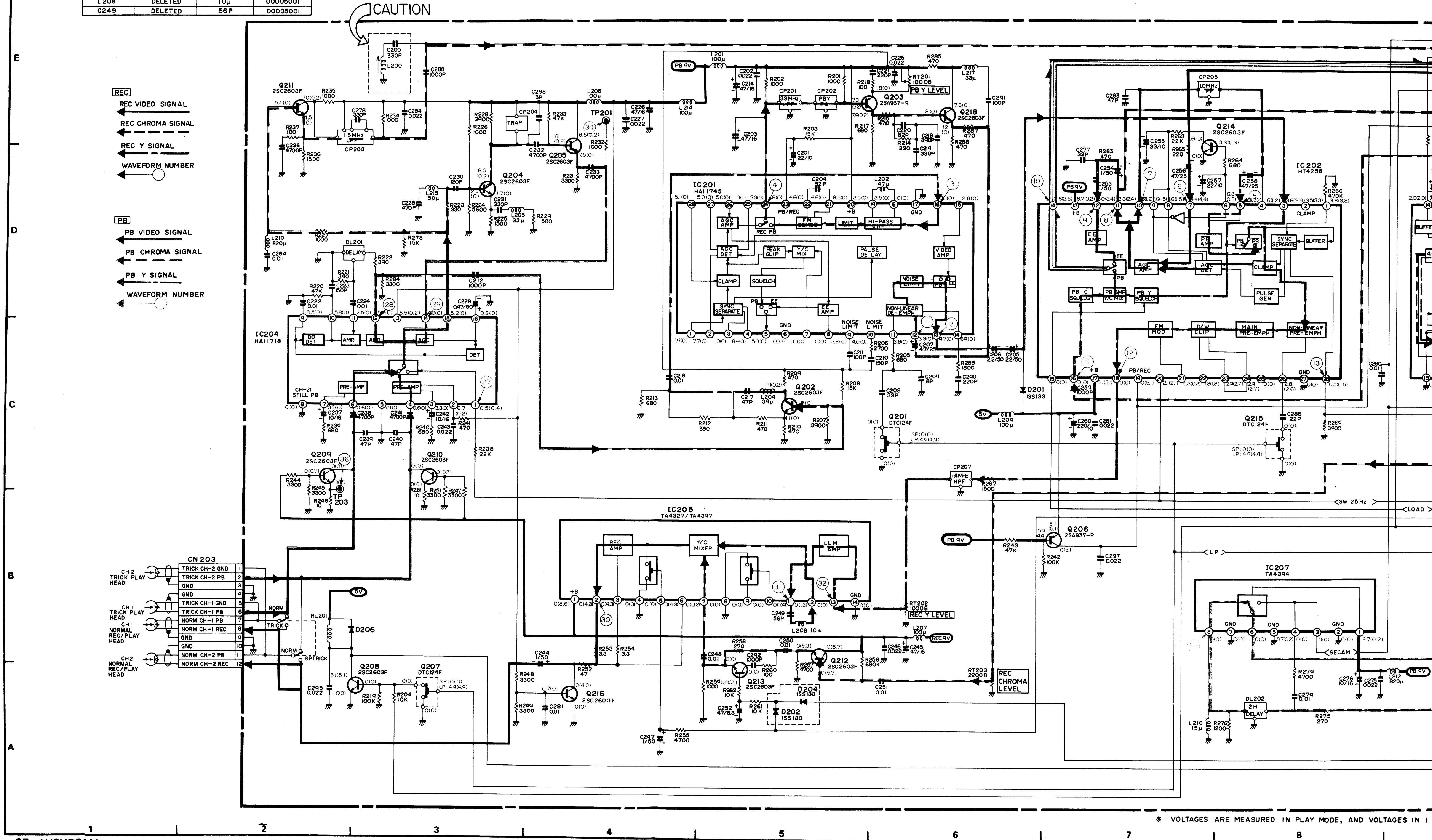
1	CYL SPEED
2	CAPSTAN SPEED
3	CYL FREE RUN
4	5V
5	CAPSTAN FG
6	CAPSTAN AD

TEST POINT

VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

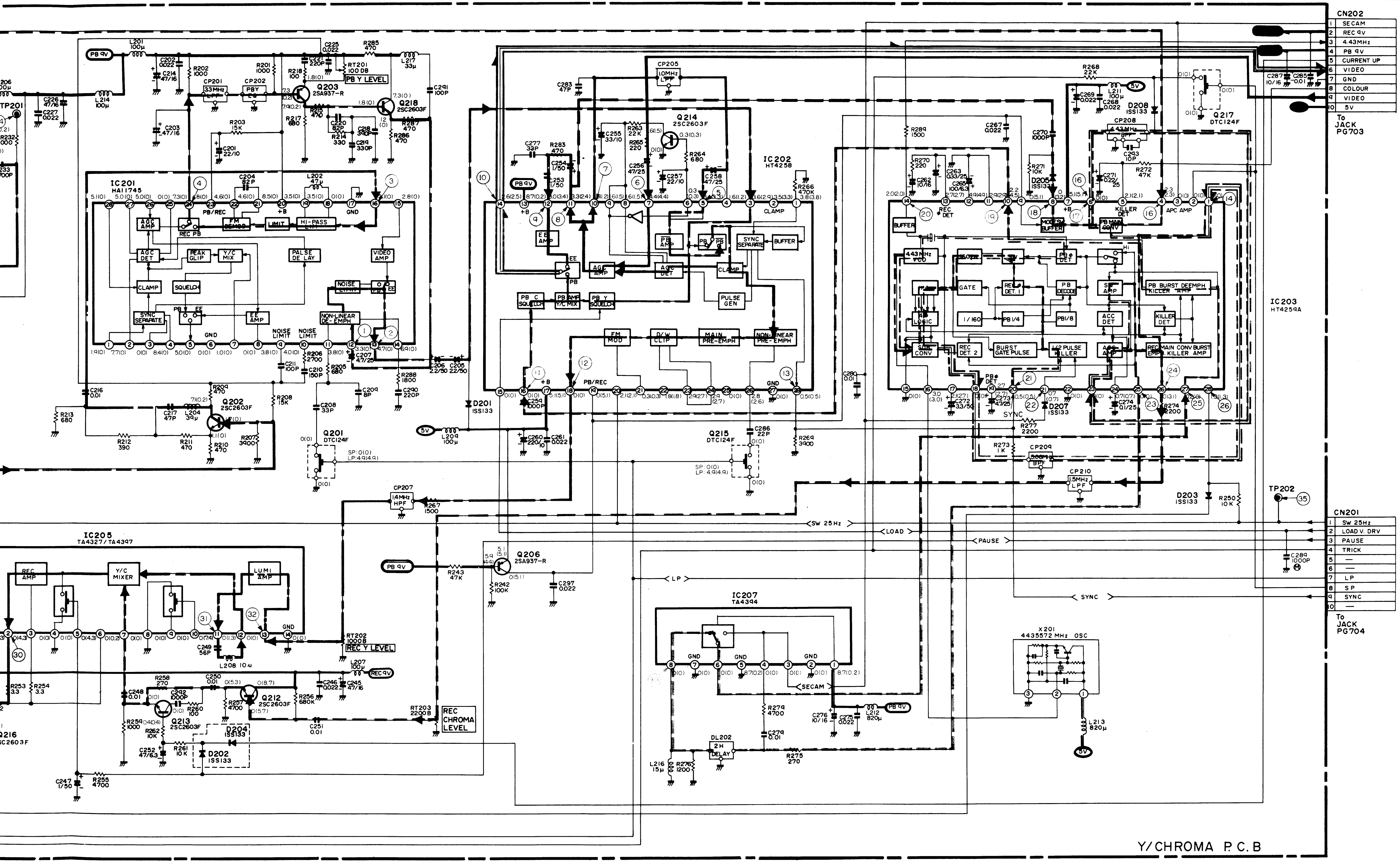
Y/CHROMA

Symbol No.	After change	Before change	Changed from serial No.
L208	DELETED	10μ	00005001
C249	DELETED	56P	00005001



CAUTION
REC
REC VIDEO SIGNAL
REC CHROMA SIGNAL
REC Y SIGNAL
WAVEFORM NUMBER
PB
PB VIDEO SIGNAL
PB CHROMA SIGNAL
PB Y SIGNAL
WAVEFORM NUMBER
IC201 HA11745
IC202 HT4258
IC204 HA11718
IC205 TA4327/TA4397
IC207 TA4394
Q201 DTC124F
Q202 2SC2603F
Q203 2SA937-R
Q204 2SC2603F
Q205 2SC2603F
Q206 2SA937-R
Q207 DTC124F
Q208 2SC2603F
Q209 2SC2603F
Q210 2SC2603F
Q211 2SC2603F
Q212 2SC2603F
Q213 2SC2603F
Q214 2SC2603F
Q215 DTC124F
Q216 2SC2603F
Q218 2SC2603F
TP201
TP203
CN203
TRICK CH-2 GND
TRICK CH-2 PB
GND
GND
TRICK CH-1 GND
TRICK CH-1 PB
NORM CH-1 PB
NORM CH-1 REC
GND
GND
NORM CH-2 PB
NORM CH-2 REC
CH2 TRICK PLAY HEAD
CH1 TRICK PLAY HEAD
CH1 NORMAL REC/PLAY HEAD
CH2 NORMAL REC/PLAY HEAD
RL201
NORM
TRICK
SP.TRICK
PB 9V
REC 9V
5V
RT201 100 DB PB Y LEVEL
RT202 1000B REC Y LEVEL
RT203 2200B REC CHROMA LEVEL
CP201 33MHz LPF
CP202 PBY
CP203 1.5MHz LPF
CP205 1.0MHz LPF
CP207 14MHz HPF
DL201 DELAY
DL202 2H DELAY
D201 1SS133
D202 1SS133
D204 1SS133
D206
SW 25Hz
LOAD
LP
SECAM
PB/REC
CLAMP

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		



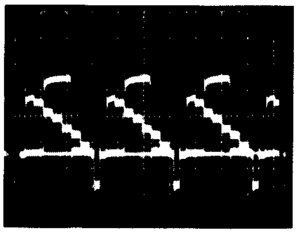
PB 9V
L201 100µ
C202 0.022
C214 47/16
R202 1000
CP201 3.3MHz LPF
CP202 PBY EQ
R201 1000
R218 100
C221 220P
C225 0.022
R285 470
L217 33µ
RT201 100 DB
PB Y LEVEL
Q203 2SA937-R
Q218 2SC2603F
R215 470
R217 680
C220 82P
R214 330
C218 390P
C219 330P
R287 470
R286 470
C291 100P
C226 47/16
C227 0.022
L214 100µ
TP201
R232 1000
C233 4700P
C203 47/16
R203 15K
C201 22/10
IC201
HA11745
C204 82P
L202 47µ
AGC AMP
REC PB
PB/REC
FM DEMOD
LIMIT
HI-PASS LIM
+B
GND
AGC DET
PEAK CLIP
Y/C MIX
PALSE DELAY
VIDEO AMP
CLAMP
SQUELCH
NOISE LIMIT
SYNC SEPARATE
PB
EE
EE AMP
NON-LINEAR DE-EMPH
C206 22/50
C205 22/50
C207 47/25
R206 2700
C211 100P
C210 150P
R205 680
R288 1800
C290 220P
C209 8P
C208 33P
C216 0.01
R213 680
R209 470
R208 15K
Q202 2SC2603F
C217 47P
L204 39µ
R212 390
R211 470
R210 470
R207 3900
D201 1SS133
5V
L209 100µ
Q201 DTC124F
SP:0(0)
LP:4.9(4.9)
CP207 1.4MHz HPF
R267 1500
CP205 1.0MHz LPF
C283 47P
Q214 2SC2603F
C277 33P
R283 470
C254 1/50
C253 1/50
C255 33/10
R263 22K
R265 220
R264 680
C256 47/25
C257 22/10
C258 47/25
IC202
HT4258
R266 470K
CLAMP
EE AMP
PB AMP
SYNC SEPARATE
BUFFER
AGC AMP
AGC DET
PULSE GEN
PB C SQUELCH
PB AMP Y/C MIX
PB Y SQUELCH
FM MOD
D/W CLIP
MAIN PRE-EMPH
NON-LINEAR PRE-EMPH
C259 1000P
C260 220/10
C261 0.022
Q215 DTC124F
C286 22P
R269 3900
C280 0.01
R289 1500
C267 0.022
C270 1000P
R268 22K
L211 100µ
C269 0.022
C268 0.022
D208 1SS133
CP208 4.43MHz BPF
C293 10P
R270 220
C262 10/16
C263 0.33/25
C265 100/6.3
R271 10K
D205 1SS133
C271 0.22/25
R272 47K
REC DET
MODE SW BUFFER
PB MAIN CONV
KILLER DET
APC AMP
BUFFER
4.43MHz VCO
160fH
SW
PB φ DET
Hi
GATE
REC φ DET. 1
PB DECODE
SW AMP
PB BURST DEEMPH KILLER AMP
4φ LOGIC
1/160
PB1/4
PB1/8
ACC DET
KILLER DET
SUB CONV
REC DET. 2
BURST GATE PULSE
1/2 PULSE KILLER
ACC AMP
REC EMPH
MAIN CONV BURST KILLER AMP
IC203
HT4259A
C272 3.3/50
C273 4.7/25
D207 1SS133
C274 0.1/25
R274 2200
SYNC
R277 2200
R273 1K
CP209 5.06MHz BPF
CP210 1.5MHz LPF
D203 1SS133
R250 10K
TP202
Q217 DTC124F
C287 10/16
C285 0.01
CN202
1 SECAM
2 REC 9V
3 4.43MHz
4 PB 9V
5 CURRENT UP
6 VIDEO
7 GND
8 COLOUR
9 VIDEO
10 5V
To JACK PG703
CN201
1 SW 25Hz
2 LOAD V. DRV
3 PAUSE
4 TRICK
5 —
6 —
7 LP
8 SP
9 SYNC
10 —
To JACK PG704
C289 1000P
SW 25Hz
LOAD
PAUSE
LP
SYNC
SECAM
IC205
TA4327/TA4397
REC AMP
Y/C MIXER
LUMI AMP
C249 56P
L208 10µ
RT202 1000B
REC Y LEVEL
L207 100µ
REC 9V
C246 0.022
C245 47/16
R258 270
C250 0.01
C292 1000P
R260 100
R257 4700
Q212 2SC2603F
R256 680K
C248 0.01
R259 1000
Q213 2SC2603F
R262 10K
D204 1SS133
D202 1SS133
C252 47/6.3
R261 10K
C251 0.01
RT203 2200B
REC CHROMA LEVEL
R253 3.3
R254 3.3
Q216 2SC2603F
C247 1/50
R255 4700
Q206 2SA937-R
R243 47K
R242 100K
C297 0.022
IC207
TA4394
R279 4700
C279 0.01
C276 10/16
C275 0.022
L212 820µ
DL202 2H DELAY
L216 15µ
R276 1200
R275 270
X201
4435572 MHz OSC
L213 820µ
Y/CHROMA P.C.B

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

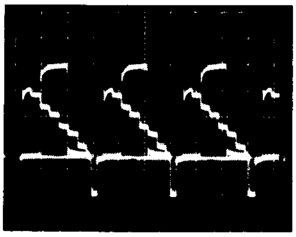
Y/CHROMA WAVEFORMS

[IC201]

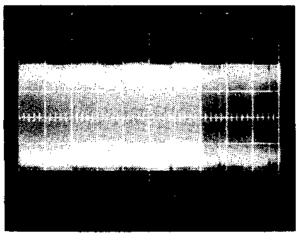
① PIN ⑫ PLAY
0.2V/20μs. div.



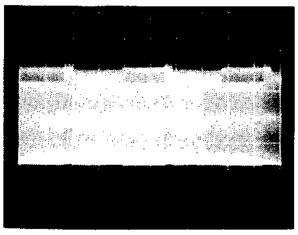
② PIN ⑬ PLAY
0.2V/20μs. div.



③ PIN ⑯ PLAY
50mV/10ms div.

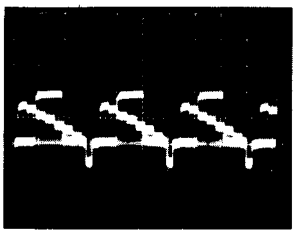


④ PIN ㉔ PLAY
0.5V/5ms. div.

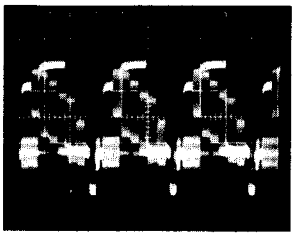


[IC202]

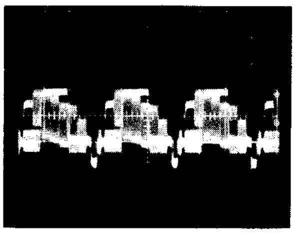
⑤ PIN ⑤ REC
0.2V/20μs. div.



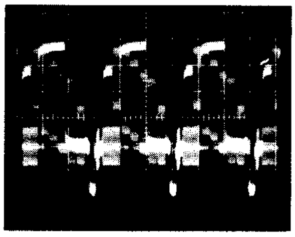
⑥ PIN ⑦ REC
0.2V/20μs. div.



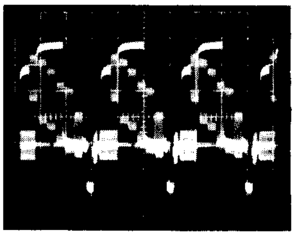
⑦ PIN ⑩ REC
0.2V/20μs. div.



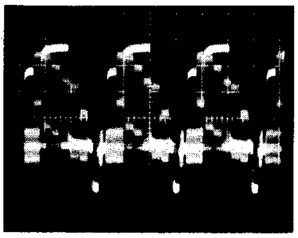
⑧ PIN ⑪ REC
0.2V/20μs. div.



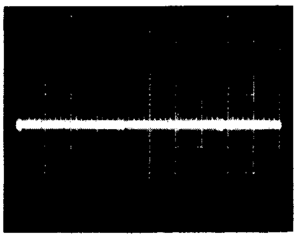
⑨ PIN ⑫ REC
0.2V/20μs. div.



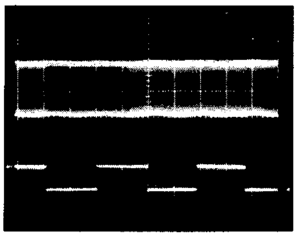
⑩ PIN ⑭ REC
0.2V/20μs. div.



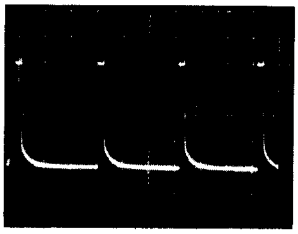
⑪ PIN ⑯ PLAY
0.1V/5ms. div.



⑫ PIN ⑱ REC
0.5V/10ms. div.

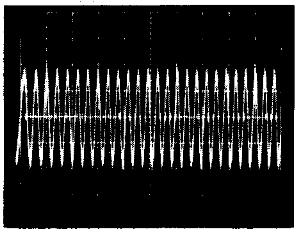


⑬ PIN ㉘ REC
1V/20μs. div.

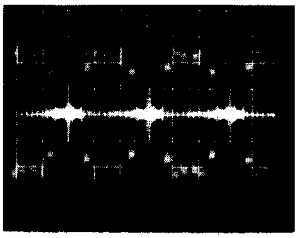


[IC203]

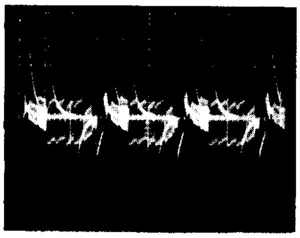
⑭ PIN ① REC
0.1V/0.5μs. div.



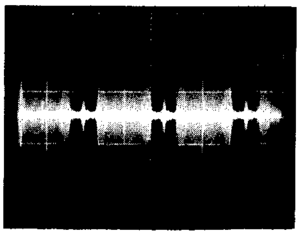
⑮ PIN ④ PLAY
0.5V/20μs. div.



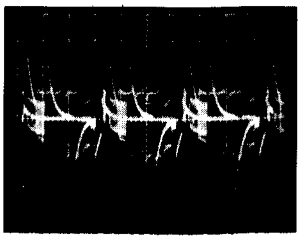
⑯ PIN ⑥ REC
0.2V/20μs. div.



⑰ PIN ⑥ PLAY
0.2V/20μs. div.

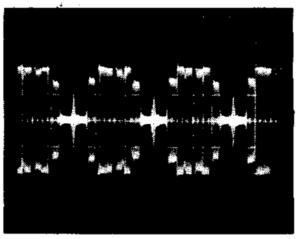


⑱ PIN ⑧ REC
0.2V/20μs. div.

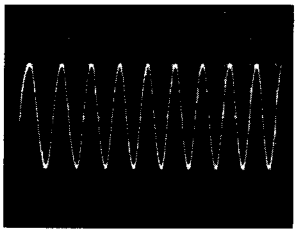


[IC503]

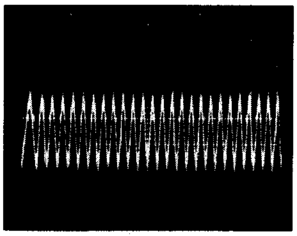
⑲ PIN ⑩ PLAY
0.1V/20μs. div.



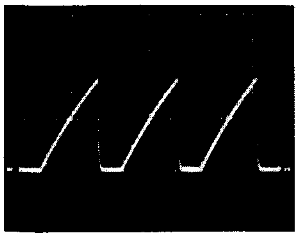
⑳ PIN ⑭ PLAY
0.1V/0.2μs. div.



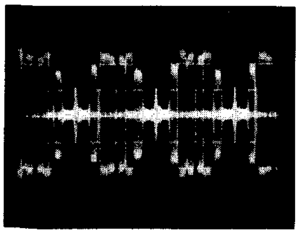
㉑ PIN ⑳ REC
1V/20μs. div.



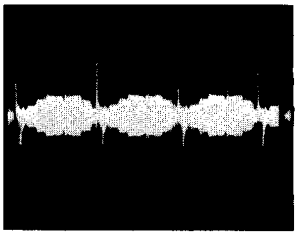
㉒ PIN ㉑ REC
0.5V/20μs. div.



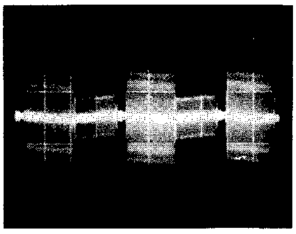
㉓ PIN ㉕ PLAY
0.2V/20μs. div.



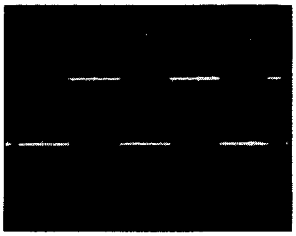
㉔ PIN ㉖ PLAY
10mV/10μs. div.



㉕ PIN ㉗ PLAY
50mV/20μs. div.

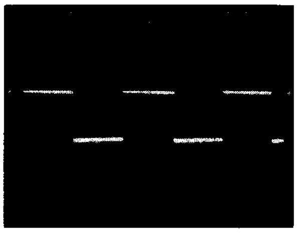


㉖ PIN ㉘ REC
1V10ms. div.

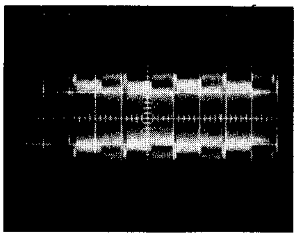


[IC204]

㉗ PIN ① PLAY
0.5V/10ms. div.

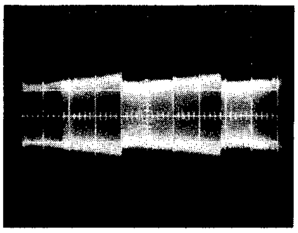


㉘ PIN ⑫ PLAY
0.2V/10ms. div.



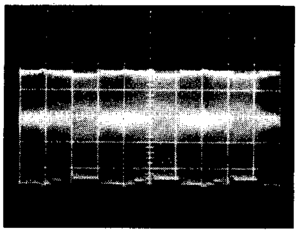
[IC204]

㉙ PIN ⑭ PLAY
0.1V/10ms. div.

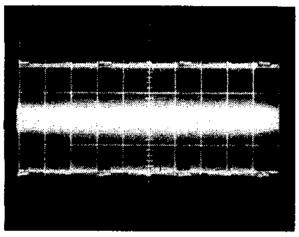


[IC205]

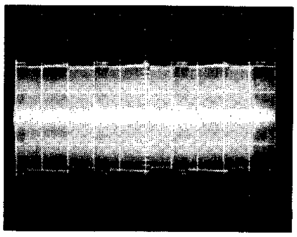
㉚ PIN ② REC
1V/20μs. div.



㉛ PIN ⑪ REC
0.1V/20μs. div.

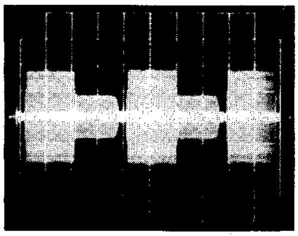


㉜ PIN ⑬ REC
0.1V/20μs. div.



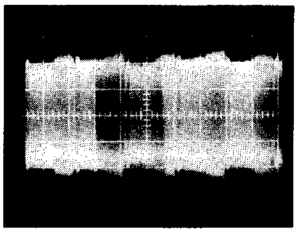
[IC207]

㉝ PIN ⑧ PLAY
50mV/5ms. div.

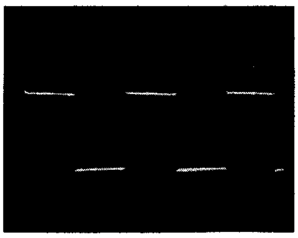


[OTHER]

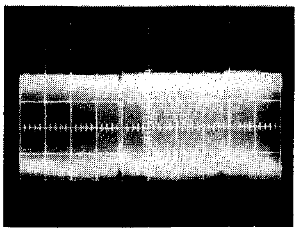
㉞ TP201 PLAY
0.1V/10m s. div.

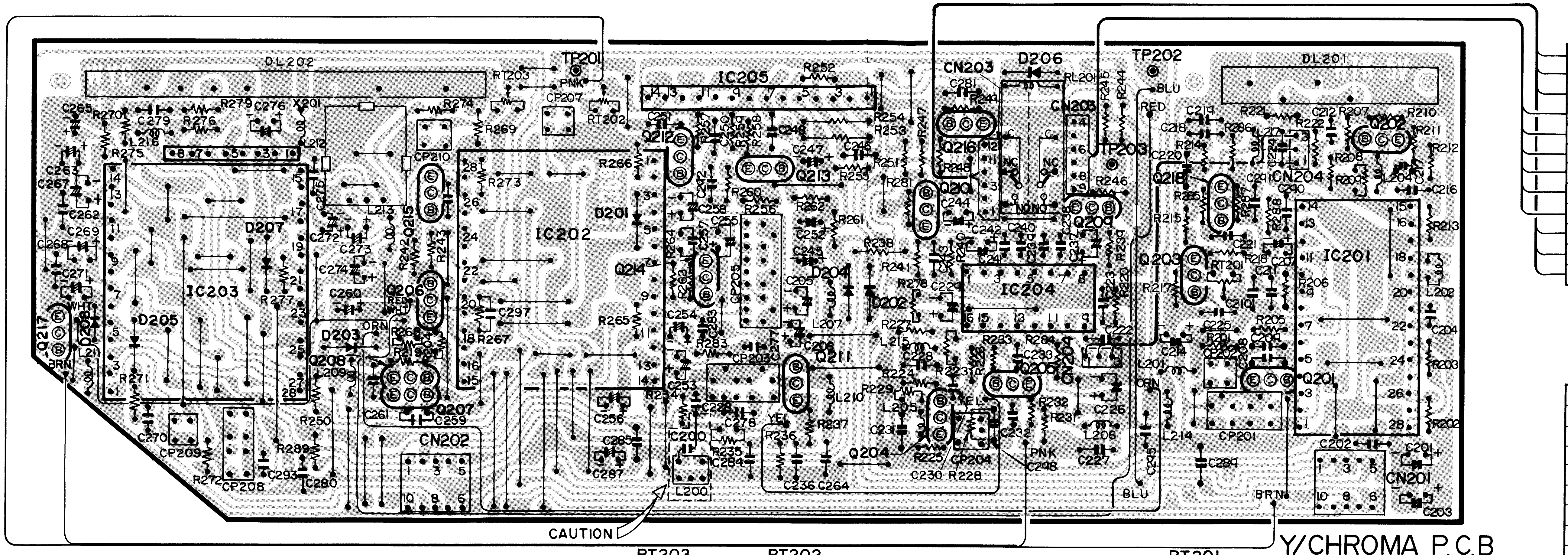


㉟ TP202 REC
1V/10μs. div.



㊱ TP203 REC
50mV/5ms. div.




DL202
TP201
PNK
RT203
CP207
RT202
IC205
R252
CN203
D206
RL201
TP202
BLU
RED
DL201
CN203
TP203
Q216
Q213
Q212
Q210
Q209
Q218
Q202
CN204
IC201
IC202
IC203
IC204
D201
D202
D204
D205
D207
Q214
Q215
Q206
RED
WHT
ORN
D203
Q208
Q207
Q217
WHT
BRN
CP210
CP205
CP203
Q211
Q205
Q204
Q203
Q201
CP201
CP204
CP209
CP208
CN202
CN201
L200
IC200
YEL
PNK
ORN
BLU
BRN
CAUTION

RT203
REC CHROMA
LEVEL

RT202
REC Y LEVEL

RT201
PB Y LEVEL

Y/CHROMA P.C.B

CN203

1	TRICK CH-2 GND
2	TRICK CH-2 PB
3	GND
4	GND
5	TRICK CH-1 GND
6	TRICK CH-1 PB
7	NORM CH-1 PB
8	NORM CH-1 REC
9	GND
10	GND
11	NORM CH-2 PB
12	NORM CH-2 REC

To
VIDEO HEAD

CN201

1	SW 25 Hz
2	LOAD V. DRV
3	PAUSE
4	TRICK
5	——
6	——
7	LP
8	SP
9	SYNC
10	——

To
JACK
PG704

CN202

1	SECAM
2	REC 9V
3	4.43 MHz
4	PB 9V
5	CURRENT UP
6	VIDEO
7	GND
8	COLOUR
9	VIDEO
10	5V

To
JACK
PG703

IC201

14	6.9 (0)	15	2.8 (0)
13	4.7 (0)	16	3.1 (0)
12	3.3 (0)	17	0 (0)
11	3.8 (0)	18	3.5 (0)
10	4.0 (0)	19	3.5 (0)
9	3.8 (0)	20	8.5 (0)
8	0 (0)	21	4.6 (0)
7	1.0 (0)	22	4.6 (0)
6	0 (0)	23	1.8 (0)
5	5.0 (0)	24	7.3 (0)
4	8.4 (0)	25	0 (0)
3	0 (0)	26	5.0 (0)
2	7.7 (0)	27	5.0 (0)
1	1.9 (0)	28	5.1 (0)

IC202

28	0.5 (0.5)	1	3.8 (3.8)
27	0 (0)	2	3.5 (3.3)
26	2.8 (2.6)	3	3.6 (2.9)
25	0 (0)	4	1.6 (1.2)
24	2.9 (2.7)	5	3.4 (3.3)
23	2.9 (2.7)	6	0.3 (0.3)
22	1.8 (1.8)	7	4.4 (4.4)
21	0.3 (0.3)	8	1.6 (1.5)
20	2.1 (2.1)	9	1.6 (1.5)
19	0 (5.1)	10	1.6 (1.2)
18	0 (0)	11	3.3 (2.4)
17	5.1 (5.1)	12	3.0 (3.4)
16	0 (0)	13	8.7 (0.2)
15	0 (0)	14	2.6 (2.5)

IC203

14	2.0 (2.0)	15	0 (0)
13	2.7 (2.7)	16	3.0 (3.0)
12	4.9 (4.9)	17	2.1 (2.7)
11	2.9 (2.9)	18	0 (0)
10	2.2 (4.5)	19	2.7 (2.7)
9	0 (5.1)	20	0.5 (0.5)
8	0 (3.2)	21	0.7 (0.7)
7	5.1 (5.1)	22	0 (0)
6	0 (0)	23	0 (0)
5	2.1 (2.1)	24	0.7 (0.7)
4	2.3 (2.3)	25	0 (0)
3	0 (0)	26	0 (3.1)
2	0 (0)	27	0.2 (0)
1	0 (0)	28	1.3 (1.3)

IC204

8	7	6	5	4	3	2	1
0 (0)	3.3 (0)	0.6 (0)	0 (0)	0.6 (0)	3.3 (0)	6.7 (0.2)	0.5 (0.4)
9	10	11	12	13	14	15	16
3.5 (0)	5.8 (0)	2.5 (0)	5.2 (0)	8.5 (0.2)	4.0 (0)	5.2 (0)	0.8 (0)

IC205

14	13	12	11	10	9	8	7	6	5	4	3	2	1
0 (0)	0 (0)	0 (1.3)	0 (7.4)	0 (0)	0 (0)	0 (0)	0 (0.2)	0 (4.3)	0 (0)	0 (0)	0 (4.3)	0 (4.3)	0 (8.6)

IC207

8	7	6	5	4	3	2	1
0 (0)	0 (0)	0 (0)	8.7 (0.2)	0 (0)	0 (0)	0 (0)	8.7 (0.2)

Q201

B	SP: 0 (0) LP: 4.9 (4.9)
C	0 (0)
E	0 (0)

Q202

B	1.7 (0)
C	7.1 (0.2)
E	1.1 (0)

Q203

B	7.3 (0.2)
C	1.8 (0)
E	7.9 (0.2)

Q204

B	2.3 (0)
C	8.5 (0.2)
E	1.7 (0)

Q205

B	8.1 (0.2)
C	8.5 (0.2)
E	7.5 (0)

Q206

B	5.9 (4.4)
C	0 (5.1)
E	5.1 (5.1)

Q207

B	SP: 0 (0) LP: 4.9 (4.9)
C	0 (0)
E	0 (0)

Q208

B	0 (0)
C	5.1 (5.1)
E	0 (0)

Q209

B	0 (0.7)
C	0 (0)
E	0 (0)

Q210

B	0 (0.7)
C	0 (0)
E	0 (0)

Q211

B	5.1 (0)
C	7.0 (0.2)
E	4.5 (0)

Q212

B	0 (5.7)
C	0 (8.7)
E	0 (5.3)

Q213

B	0.4 (0.4)
C	0 (0)
E	0 (0)

Q214

B	0.3 (0.3)
C	1.6 (1.5)
E	0 (0)

Q215

B	SP: 0 (0) LP: 4.9 (4.9)
C	0 (0)
E	0 (0)

Q216

B	0.7 (0)
C	0 (4.3)
E	0 (0)

Q217

B	0 (0)
C	0 (0)
E	0 (0)

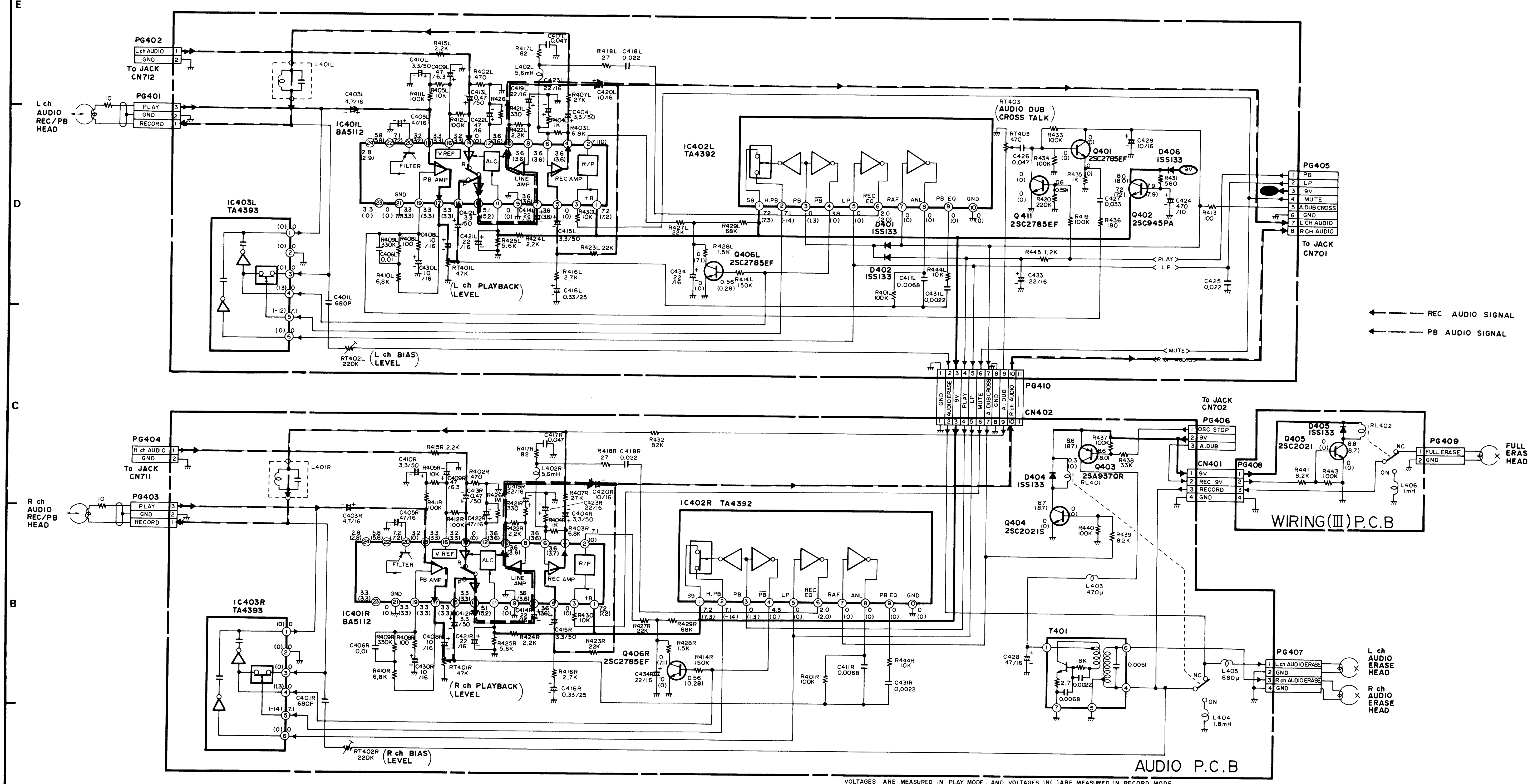
Q218

B	1.8 (0)
C	7.3 (0)
E	12 (0)

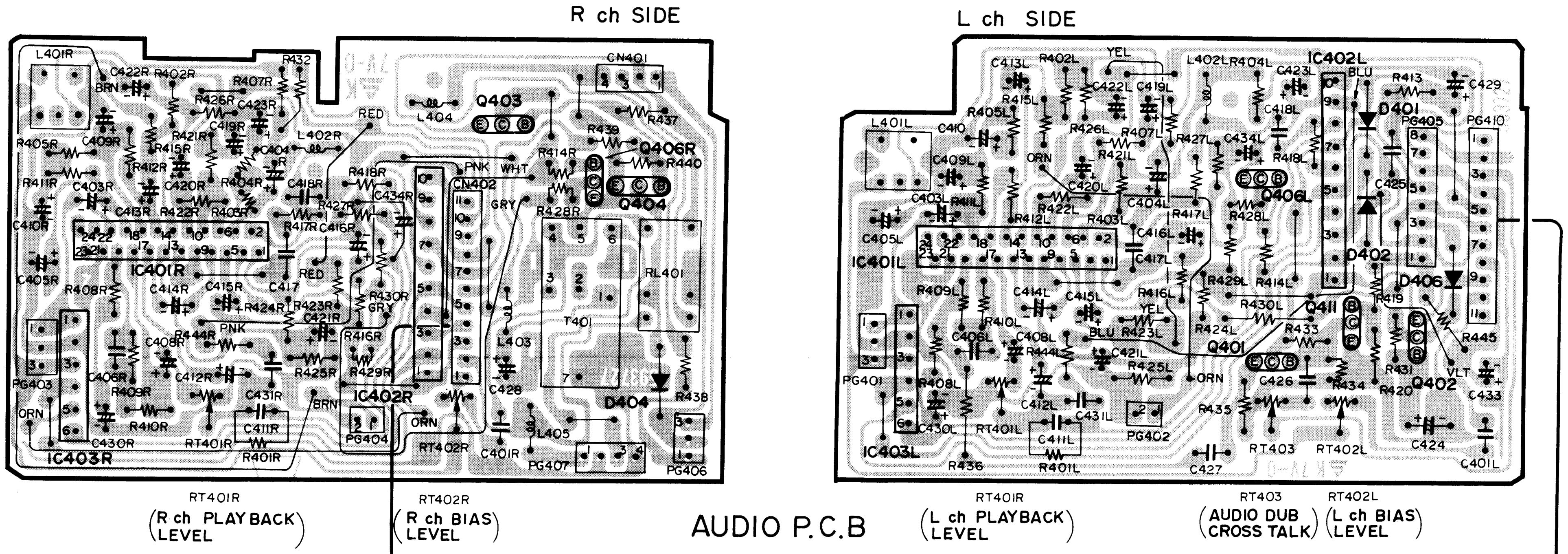
※ VOLTAGES ARE MEASURED IN PLAY MODE,
AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE

AUDIO

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V-S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		


E
D
C
B
A
1
2
3
4
5
6
7
8
PG402
L ch AUDIO
GND
To JACK CN712
PG401
PLAY
GND
RECORD
L ch AUDIO REC/PB HEAD
L401L
IC401L BA5112
IC402L TA4392
IC403L TA4393
FILTER
V REF
PB AMP
ALC
LINE AMP
REC AMP
R/P
+B
H.PB
PB
LP
REC EQ
RAF
ANL
PB EQ
GND
RT403 (AUDIO DUB CROSS TALK)
Q401 2SC2785EF
Q411 2SC2785EF
Q402 2SC945PA
D406 1SS133
D401 1SS133
D402 1SS133
Q406L 2SC2785EF
RT401L 47K (L ch PLAYBACK LEVEL)
RT402L 220K (L ch BIAS LEVEL)
PG405
PB
LP
9V
MUTE
A.DUB CROSS
GND
L CH AUDIO
R CH AUDIO
To JACK CN701
PLAY
LP
MUTE
R ch AUDIO
REC AUDIO SIGNAL
PB AUDIO SIGNAL
PG410
CN402
GND
AUDIO ERASE
9V
PLAY
LP
MUTE
A.DUB CROSS
GND
A.DUB
R ch AUDIO
L ch AUDIO
PG404
R ch AUDIO
GND
To JACK CN711
PG403
R ch AUDIO REC/PB HEAD
L401R
IC401R BA5112
IC402R TA4392
IC403R TA4393
Q406R 2SC2785EF
RT401R 47K (R ch PLAYBACK LEVEL)
RT402R 220K (R ch BIAS LEVEL)
To JACK CN702
PG406
OSC STOP
9V
A.DUB
Q403 2SA937QR
D404 1SS133
Q404 2SC2021S
RL401
CN401
9V
REC 9V
RECORD
GND
PG408
D405 1SS133
Q405 2SC2021
RL402
PG409
FULL ERASE
GND
FULL ERASE HEAD
L406 1mH
WIRING(Ⅲ) P.C.B
L403 470μ
T401
L405 680μ
L404 1.8mH
PG407
L ch AUDIO ERASE
GND
R ch AUDIO ERASE
GND
L ch AUDIO ERASE HEAD
R ch AUDIO ERASE HEAD
AUDIO P.C.B

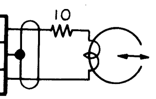
VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( )ARE MEASURED IN RECORD MODE


R ch SIDE
L ch SIDE
L401R
CN401
Q403
L404
Q406R
Q404
CN402
IC401R
IC402R
IC403R
RL401
T401
L403
L405
D404
PG403
PG404
PG407
PG406
IC402L
IC401L
IC403L
L401L
L402L
D401
D402
D406
Q406L
Q411
Q401
Q402
PG401
PG402
PG405
PG410
RT401R
(R ch PLAY BACK LEVEL)
RT402R
(R ch BIAS LEVEL)
RT401R
(L ch PLAYBACK LEVEL)
RT403
(AUDIO DUB CROSS TALK)
RT402L
(L ch BIAS LEVEL)

AUDIO P.C.B

PG401

1	RECORD
2	GND
3	PLAY


10
L ch
AUDIO
REC/PB
HEAD

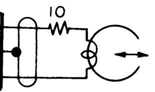
PG402

1	L ch AUDIO
2	GND

To JACK
CN712

PG403

1	RECORD
2	GND
3	PLAY


10
R ch
AUDIO
REC/PB
HEAD

PG404

1	R ch AUDIO
2	GND

To JACK
CN701

PG405

1	PB
2	LP
3	9V
4	MUTE
5	A.DUB CROSS
6	GND
7	AUDIO (L)
8	AUDIO (R)

To JACK
CN701

PG406

1	OSC STOP
2	9V
3	A.DUB

To JACK
CN702

CN401

1	9V
2	REC 9V
3	RECORD
4	GND

To WIRING Ⅲ
PG408

PG407

1	L ch AUDIO ERASE
2	GND
3	R ch AUDIO ERASE
4	GND

To L ch /R ch AUDIO
ERASE HEAD

PG402 ←→ PG410

1	GND	1
2	AUDIO ERASE	2
3	9V	3
4	PLAY	4
5	LP	5
6	MUTE	6
7	A.DUB CROSS	7
8	GND	8
9	A.DUB	9
10	R ch AUDIO	10
11	———	11

Q404

B	0 (0)
C	8.7 (8.7)
E	0 (0)

IC401L/R

1	2	3	4	5	6	7	8	9	10	11	12
7.2 (7.2)	7.1 (0)	0 (0)	3.6(3.6)	3 6(3.6)	3 6 (3.6)	3.6(3.6)	3.6(3.6)	0 (0)	3.6 (3.6)	5.1 (5.2)	0 (0)
13	14	15	16	17	18	19	20	21	22	23	24
3.3 (3.3)	3.2(3.3)	3.3(3.3)	3.3(3.3)	3.3 (3.3)	3.2 (3.2)	3.3(3.3)	7.1(7.2)	0 (0)	5.8 (5.9)	3.3 (0)	2.8 (2.9)

IC402L/R

1	2	3	4	5	6	7	8	9	10
7.2(7.3)	7.1(-14)	0 (1.3)	3.8 (0)	0 (0)	2.0 (2.0)	0 (0)	0 (0)	0 (0)	0 (0)

Q411

B	0.6 (0.59)
C	0 (0)
E	0 (0)

Q401L/R

B	0 (0)
C	0 (0)
E	0 (0)

Q402L/R

B	7.9 (7.9)
C	8 0 (8.0)
E	7.2 (7.2)

Q406L/R

B	0.56 (0.28)
C	0 (7.1)
E	0 (0)

IC403L/R

1	2	3	4	5	6
0 (0)	0 (0)	0 (0)	0 (1.3)	7.1(-12)	0 (0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED RECORD MODE

VT-TU 7E
TUNER/IF [For BS Model]

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
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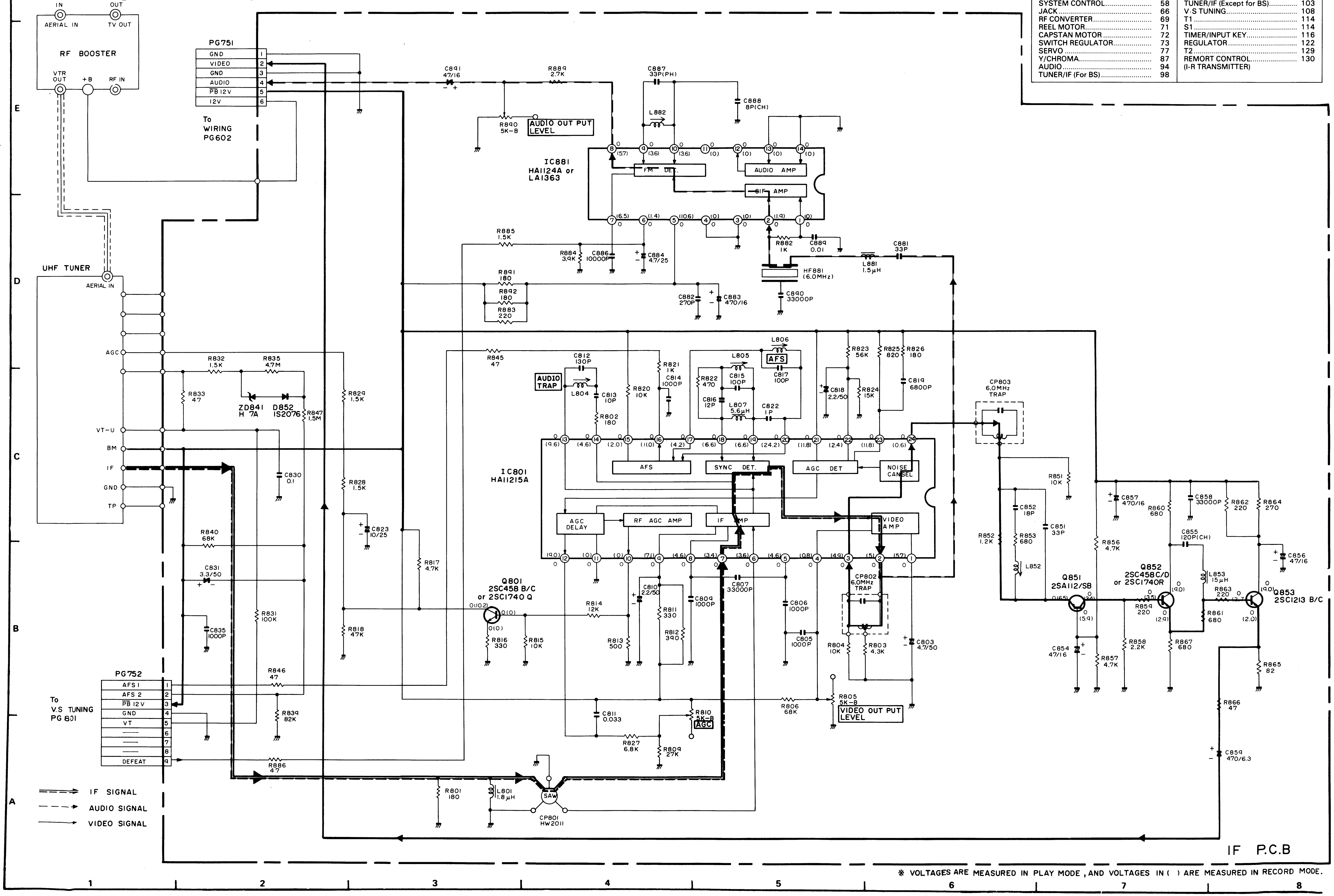
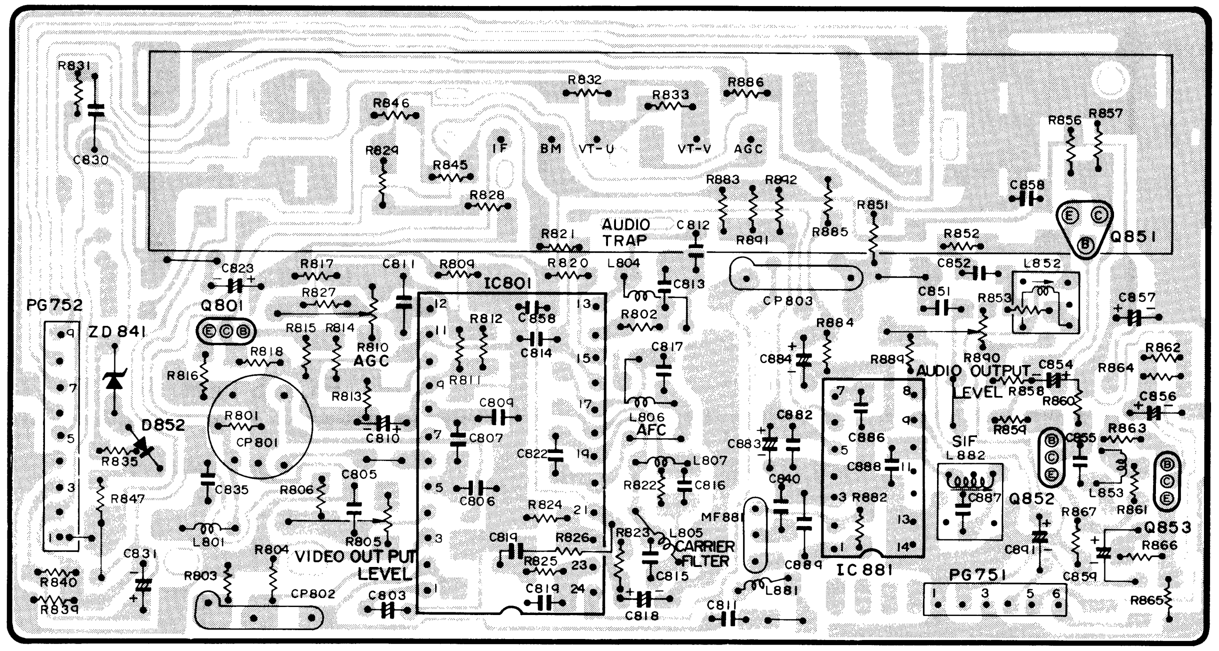
AUDIO	94	(I-R TRANSMITTER)	
TUNER/IF (For BS)	98		



IN
OUT
AERIAL IN
TV OUT
RF BOOSTER
VTR OUT
AUDIO
+B
RF IN
PG751
GND
VIDEO
GND
AUDIO
PB 12V
12V
To WIRING PG602
C841 47/16
R889 2.7K
R890 5K-B
AUDIO OUT PUT LEVEL
C887 33P(PH)
C888 8P(CH)
L882
IC881
HA1124A or LA1363
FM DET.
AUDIO AMP
SIF AMP
R885 1.5K
R884 3.9K
C886 10000P
C884 4.7/25
R882 1K
C889 0.01
C881 33P
L881 1.5μH
HF881 (6.0MHz)
C840 33000P
R891 180
R892 180
R883 220
C882 270P
C883 470/16
UHF TUNER
AERIAL IN
AGC
VT-U
BM
IF
GND
TP
R832 1.5K
R835 4.7M
R833 47
ZD841 H 7A
D852 1S2076
R847 1.5M
R829 1.5K
C830 0.1
R828 1.5K
C823 10/25
R845 47
C812 130P
AUDIO TRAP
L804
C813 10P
R802 180
R821 1K
C814 1000P
R820 10K
L806
AFS
L805
R822 470
C815 100P
C816 12P
L807 5.6μH
C817 100P
C822 1P
R823 56K
R825 820
R826 180
C818 2.2/50
R824 15K
C819 6800P
CP803 6.0MHz TRAP
IC801
HA11215A
AFS
SYNC DET.
AGC DET
NOISE CANSEL
AGC DELAY
RF AGC AMP
IF AMP
VIDEO AMP
R840 68K
C831 3.3/50
R817 4.7K
Q801
2SC458 B/C or 2SC1740 Q
R831 100K
C835 1000P
R818 47K
R816 330
R815 10K
R814 12K
R813 500
C810 2.2/50
R811 330
R812 390
C809 1000P
C807 33000P
C806 1000P
C805 1000P
CP802 6.0MHz TRAP
R804 10K
R803 4.3K
C803 4.7/50
R851 10K
C852 18P
R852 1.2K
R853 680
C851 33P
L852
Q851 2SA1112/SB
C854 47/16
R856 4.7K
R857 4.7K
C857 470/16
R860 680
C858 33000P
R862 220
R864 270
C855 120P(CH)
Q852 2SC458C/D or 2SC1740R
L853 15μH
R863 220
Q853 2SC1213 B/C
C856 47/16
R859 220
R858 2.2K
R867 680
R861 680
R865 82
R866 47
C859 470/6.3
PG752
AFS1
AFS2
PB 12V
GND
VT
DEFEAT
To V.S TUNING PG 801
R846 47
R839 82K
R886 47
R806 68K
R805 5K-B
VIDEO OUT PUT LEVEL
C811 0.033
R810 5K-B
AGC
R827 6.8K
R809 27K
R801 180
L801 1.8μH
SAW
CP801 HW2011
IF SIGNAL
AUDIO SIGNAL
VIDEO SIGNAL
IF P.C.B
A
B
C
D
E
1
2
3
4
5
6
7
8

※ VOLTAGES ARE MEASURED IN PLAY MODE , AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

TUNER PACK


R831
C830
R846
R832
R833
R886
R856
R857
R829
R845
IF
BM
VT-U
VT-V
AGC
R828
R883
R842
R851
C858
R821
AUDIO TRAP
C812
R891
R885
R852
Q851
C823
R817
C811
R809
IC801
R820
L804
C813
CP803
C852
L852
C851
R853
C857
PG752
Q801
R827
R812
C858
R802
R884
ZD841
R815
R814
R818
R810
AGC
C814
C817
C884
R889
AUDIO OUTPUT LEVEL
R890
C854
R864
R862
R816
R811
R858
R860
C856
R813
R801
CP801
C809
C807
L806
AFC
C882
C886
R854
SIF
R863
D852
C810
C822
C883
C855
R835
C805
L807
C816
C840
C888
L882
R847
C835
R806
C806
R822
R824
R882
C887
Q852
L853
R861
Q853
MF881
R867
C831
L801
R804
R805
VIDEO OUT PUT LEVEL
C819
R825
R826
R823
L805
CARRIER FILTER
C815
C889
IC881
C891
R866
R840
R839
R803
CP802
C803
C819
C818
C811
L881
PG751
C859
R865

TUNER / IF P. C. B

PG751	
1	GND
2	VIDEO
3	GND
4	AUDIO
5	$\overline{\text{PB}}$12V
6	12V

To
WIRING
PG602

PG752	
1	AFS 1
2	AFS 2
3	$\overline{\text{PB}}$12V
4	GND
5	VT
6	—
7	—
8	—
9	DEFEAT

To
V.S TUNING
PG801

IC801			
12	0(9)	13	0(4.6)
11	0(0)	14	0(4.6)
10	0(0)	15	0(2.0)
9	0(7.1)	16	0(11.0)
8	0(4.6)	17	0(4.2)
7	0(3.4)	18	0(6.6)
6	0(3.6)	19	0(6.6)
5	0(4.6)	20	0(24.2)
4	0(0.8)	21	0(11.8)
3	0(4.9)	22	0(2.4)
2	0(5)	23	0(11.8)
1	0(5.7)	24	0(0.6)

IC881			
7	0(6.5)	8	0(5.7)
6	0(1.4)	9	0(3.6)
5	0(10.6)	10	0(3.6)
4	0(0)	11	0(0)
3	0(0)	12	0(0)
2	0(1.9)	13	0(0)
1	0(0)	14	0(0)

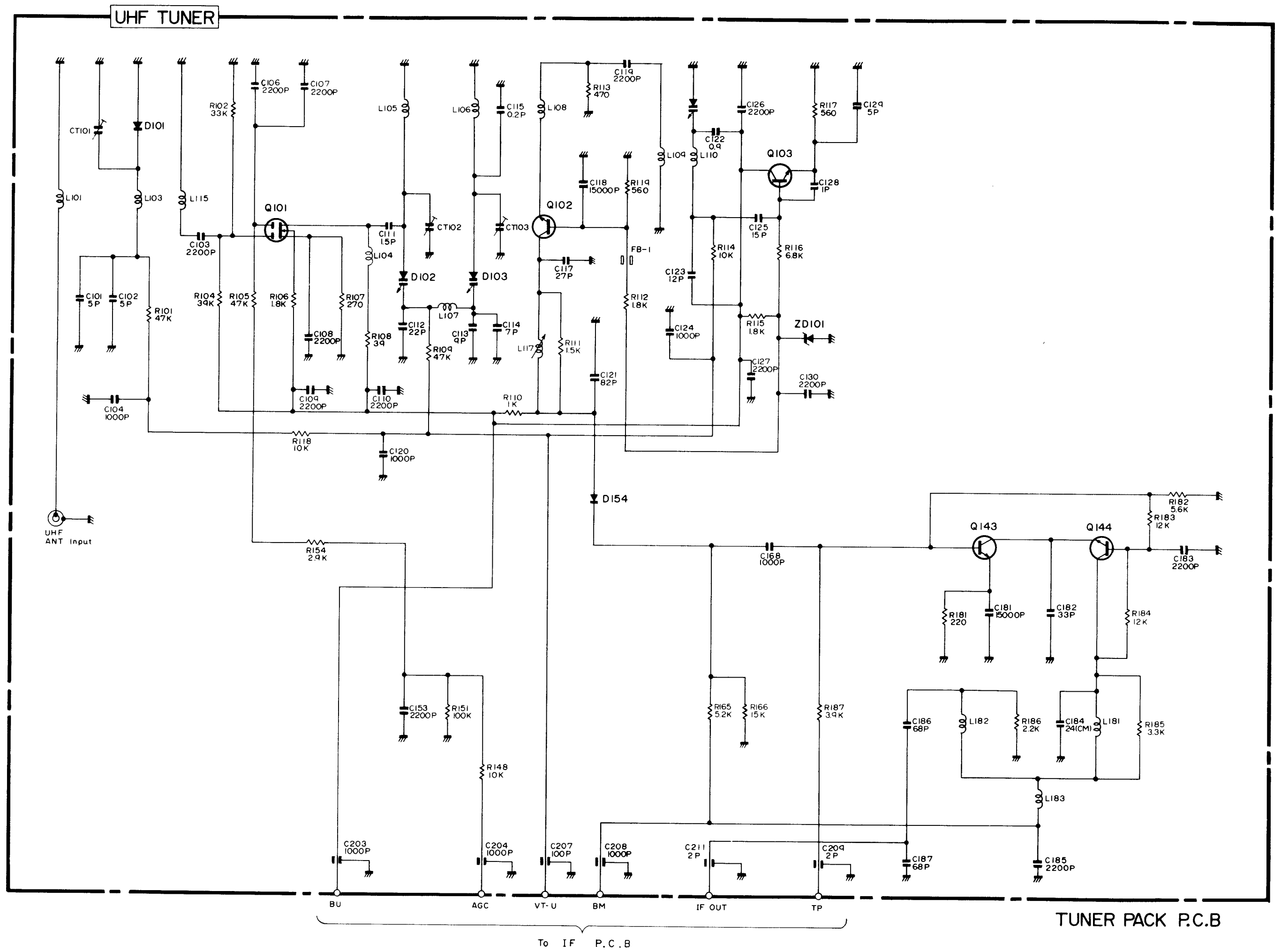
Q801	
B	0(0)
C	0(10.2)
E	0(0)

Q852	
B	0(3.5)
C	0(9.0)
E	0(2.9)

Q851	
B	0(5.9)
C	0(3.4)
E	0(6.5)

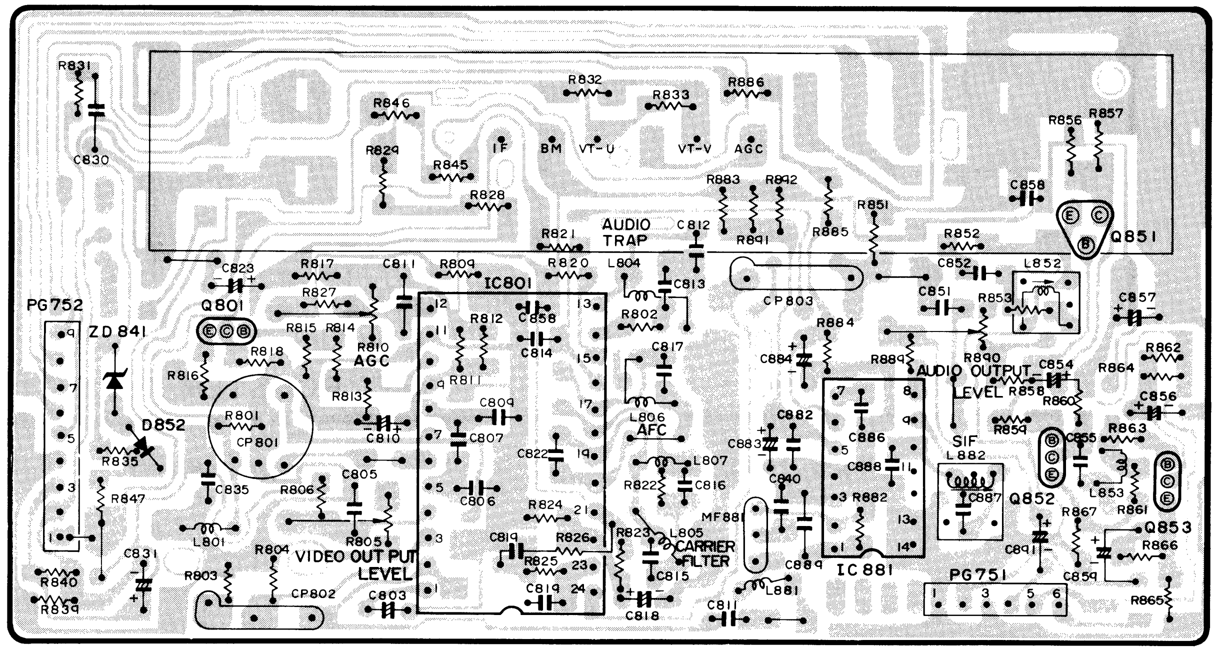
Q853	
B	0(2.7)
C	0(9.0)
E	0(2.0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.


UHF TUNER
CT101
D101
C106 2200P
C107 2200P
R102 33K
L105
L106
C115 0.2P
L108
R113 470
C119 2200P
C126 2200P
R117 560
C129 5P
C122 0.9
L110
L109
Q103
C128 1P
L101
L103
L115
Q101
C111 15P
CT102
CT103
Q102
C118 15000P
R119 560
C125 15P
C103 2200P
L104
D102
D103
C117 27P
FB-1
R114 10K
R116 68K
C123 12P
C101 5P
C102 5P
R101 47K
R104 39K
R105 47K
R106 1.8K
R107 270
C112 22P
L107
C113 9P
C114 7P
R112 1.8K
R115 1.8K
ZD101
C108 2200P
R108 39
R109 47K
L117
R111 15K
C124 1000P
C127 2200P
C109 2200P
C110 2200P
C121 82P
C130 2200P
C104 1000P
R110 1K
R118 10K
C120 1000P
UHF ANT input
D154
R182 5.6K
R183 12K
Q143
Q144
R154 2.9K
C168 1000P
C183 2200P
R181 220
C181 15000P
C182 33P
R184 12K
C153 2200P
R151 100K
R165 5.2K
R166 15K
R187 3.9K
C186 68P
L182
R186 2.2K
C184 24(CM)
L181
R185 3.3K
R148 10K
L183
C203 1000P
C204 1000P
C207 100P
C208 1000P
C211 2P
C209 2P
C187 68P
C185 2200P
BU
AGC
VT-U
BM
IF OUT
TP
To IF P.C.B

TUNER PACK P.C.B

TUNER PACK


R831
C830
R846
R832
R833
R886
R829
R845
IF
BM
VT-U
VT-V
AGC
R828
R883
R842
R856
R857
C858
R851
Q851
AUDIO TRAP
C812
R891
R885
R852
R821
R820
L804
C813
CP803
C852
L852
C851
R853
C857
C823
R817
C811
R809
IC801
R812
C858
R802
Q801
R827
R815
R814
R818
R810
AGC
C814
C817
R884
C884
R889
R890
AUDIO OUTPUT LEVEL
C854
R864
R862
PG752
ZD841
R816
R811
R813
C809
L806
AFC
C882
C886
R858
R860
C856
R801
CP801
C810
C807
C822
C883
C888
SIF
L882
R854
C855
R863
D852
R835
C835
R806
C805
C806
R822
L807
C816
C840
R882
C887
Q852
L853
R861
R847
R824
MF881
R867
Q853
L801
C831
R804
VIDEO OUT PUT LEVEL
R805
C819
R825
R826
R823
L805
CARRIER FILTER
C815
C889
IC881
C891
R866
R840
R839
R803
CP802
C803
C819
C818
C811
L881
PG751
C859
R865

TUNER / IF P.C.B

PG751

1	GND
2	VIDEO
3	GND
4	AUDIO
5	$\overline{\text{PB}}$12V
6	12V

To
WIRING
PG602

PG752

1	AFS 1
2	AFS 2
3	$\overline{\text{PB}}$12V
4	GND
5	VT
6	—
7	—
8	—
9	DEFEAT

To
V.S TUNING
PG801

IC801

12	0(9)	13	0(4.6)
11	0(0)	14	0(4.6)
10	0(0)	15	0(2.0)
9	0(7.1)	16	0(11.0)
8	0(4.6)	17	0(4.2)
7	0(3.4)	18	0(6.6)
6	0(3.6)	19	0(6.6)
5	0(4.6)	20	0(24.2)
4	0(0.8)	21	0(11.8)
3	0(4.9)	22	0(2.4)
2	0(5)	23	0(11.8)
1	0(5.7)	24	0(0.6)

IC881

7	0(6.5)	8	0(5.7)
6	0(1.4)	9	0(3.6)
5	0(10.6)	10	0(3.6)
4	0(0)	11	0(0)
3	0(0)	12	0(0)
2	0(1.9)	13	0(0)
1	0(0)	14	0(0)

Q801

B	0(0)
C	0(10.2)
E	0(0)

Q852

B	0(3.5)
C	0(9.0)
E	0(2.9)

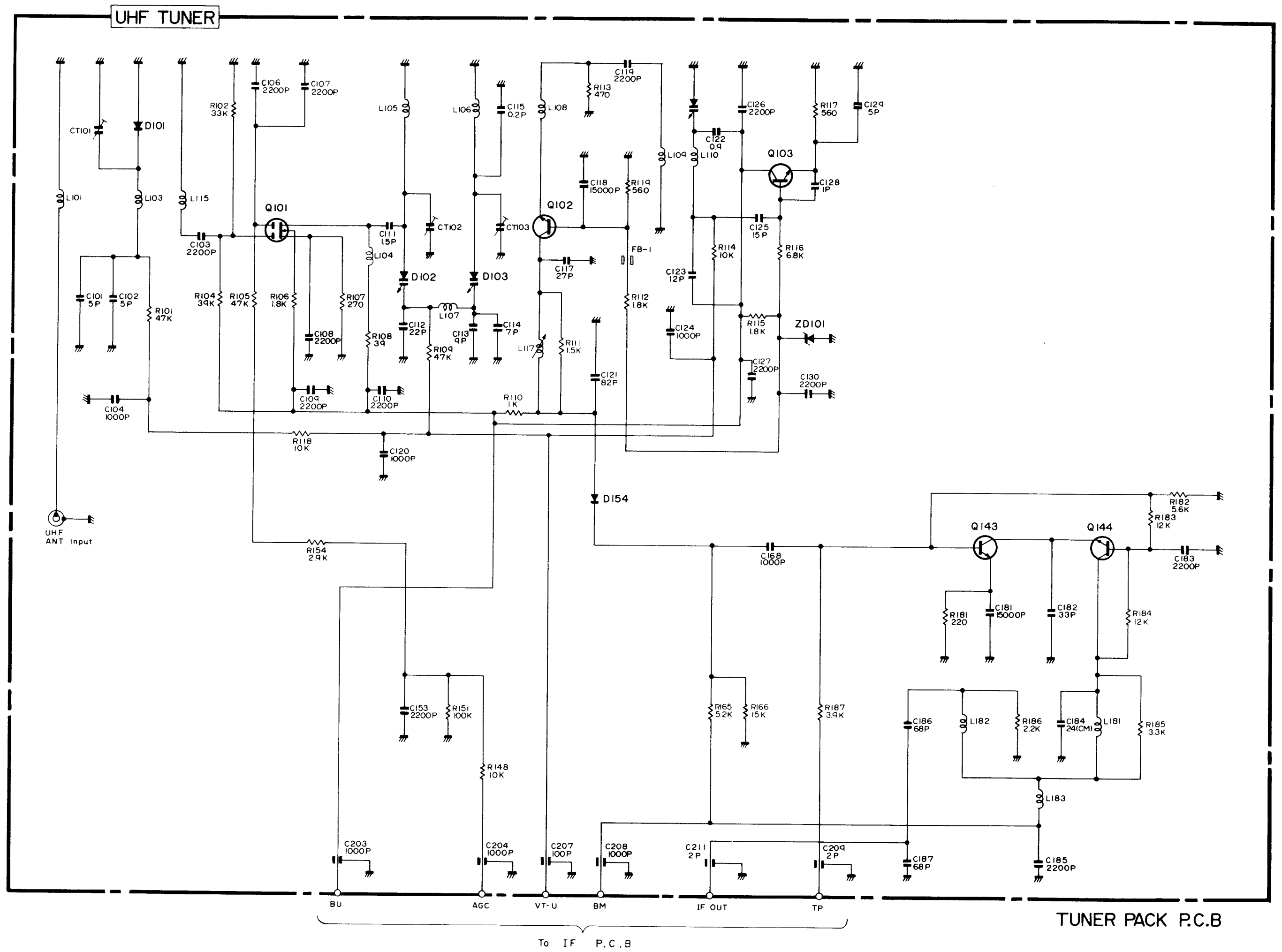
Q851

B	0(5.9)
C	0(3.4)
E	0(6.5)

Q853

B	0(2.7)
C	0(9.0)
E	0(2.0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.


UHF TUNER
CT101
D101
L101
L103
L115
R102 33K
C106 2200P
C107 2200P
Q101
C103 2200P
C101 5P
C102 5P
R101 47K
R104 39K
R105 47K
R106 18K
R107 270
C108 2200P
R108 39
C104 1000P
C109 2200P
C110 2200P
R118 10K
C120 1000P
L105
L104
C111 15P
CT102
D102
C112 22P
L107
R109 47K
L106
C115 0.2P
CT103
D103
C113 9P
C114 7P
L108
Q102
R113 470
C119 2200P
C118 15000P
R114 560
C117 27P
L117
R111 15K
C121 82P
R110 1K
FB-1
R112 18K
L109
C122 0.9
L110
C126 2200P
C123 12P
C124 1000P
R114 10K
C125 15P
Q103
R117 560
C129 5P
C128 1P
R116 68K
R115 18K
ZD101
C127 2200P
C130 2200P
UHF ANT Input
R154 2.9K
D154
C168 1000P
Q143
Q144
R182 5.6K
R183 12K
C183 2200P
R181 220
C181 15000P
C182 33P
R184 12K
C153 2200P
R151 100K
R148 10K
R165 52K
R166 15K
R187 39K
C186 68P
L182
R186 2.2K
C184 24(CM)
L181
R185 3.3K
L183
C203 1000P
C204 1000P
C207 100P
C208 1000P
C211 2P
C209 2P
C187 68P
C185 2200P
BU
AGC
VT-U
BM
IF OUT
TP
To IF P.C.B

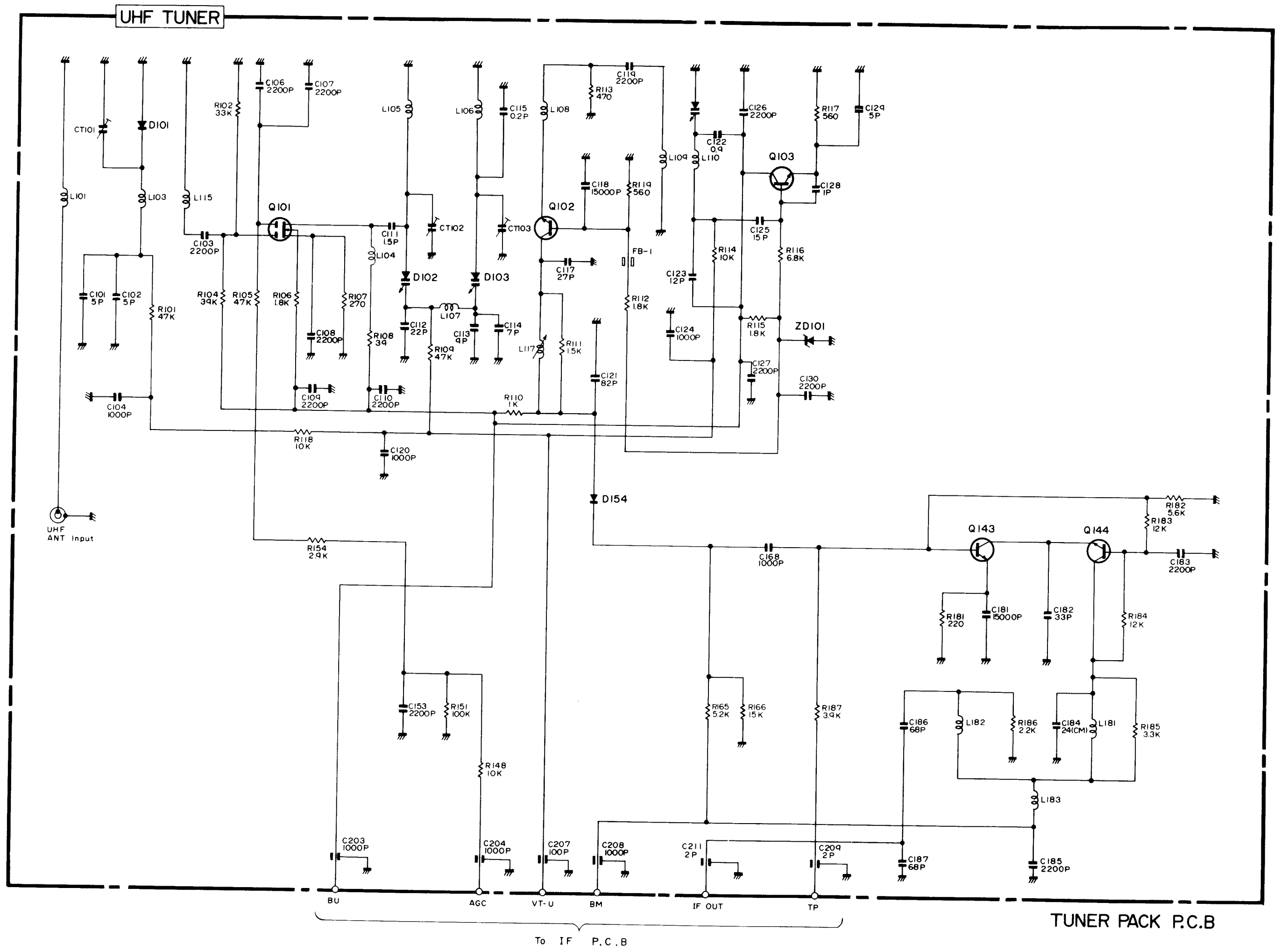
TUNER PACK P.C.B

TUNER PACK

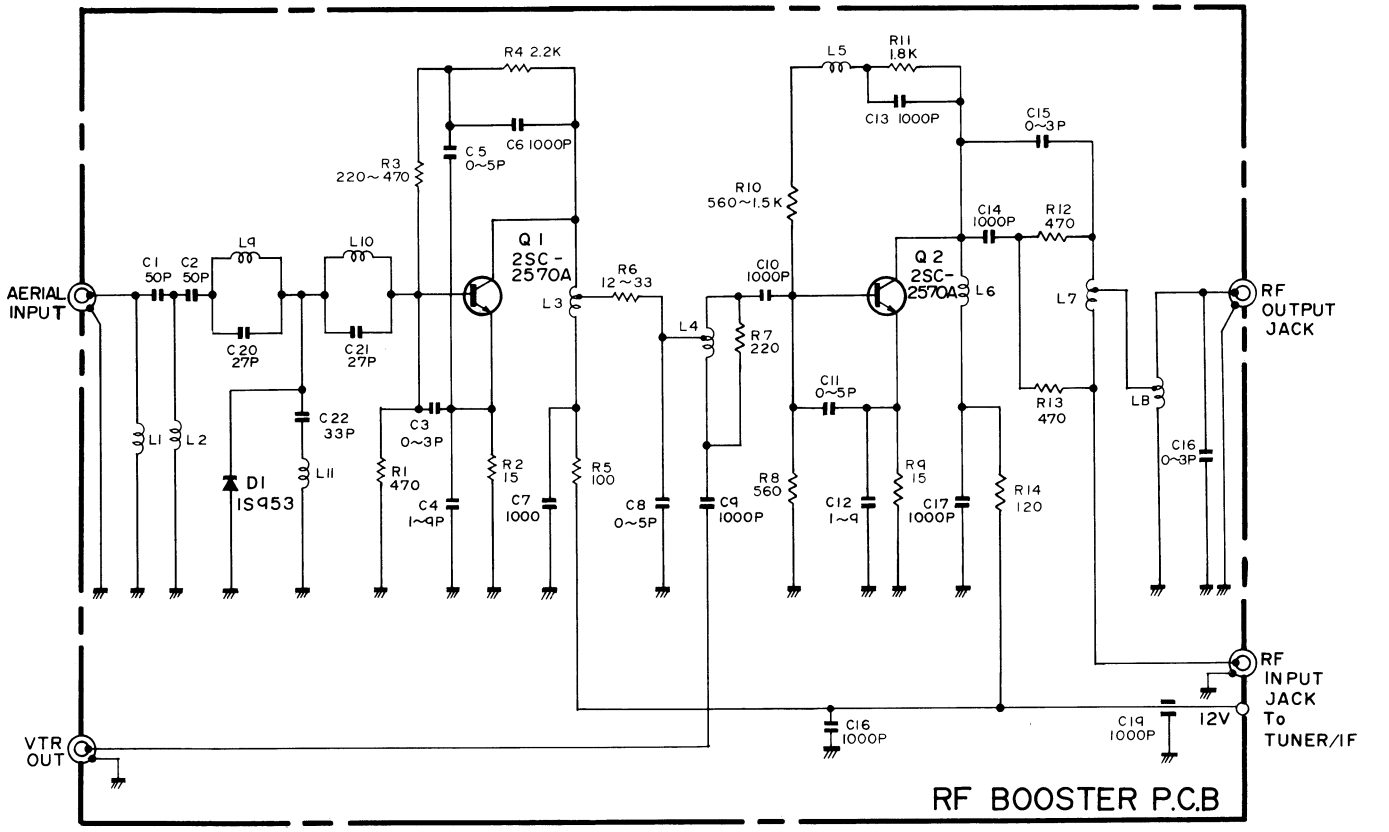
RF BOOSTER

.B
852
0(3.5)
0(R.0)
0(2.9)
853
0(2.7)
0(9.0)
0(2.0)

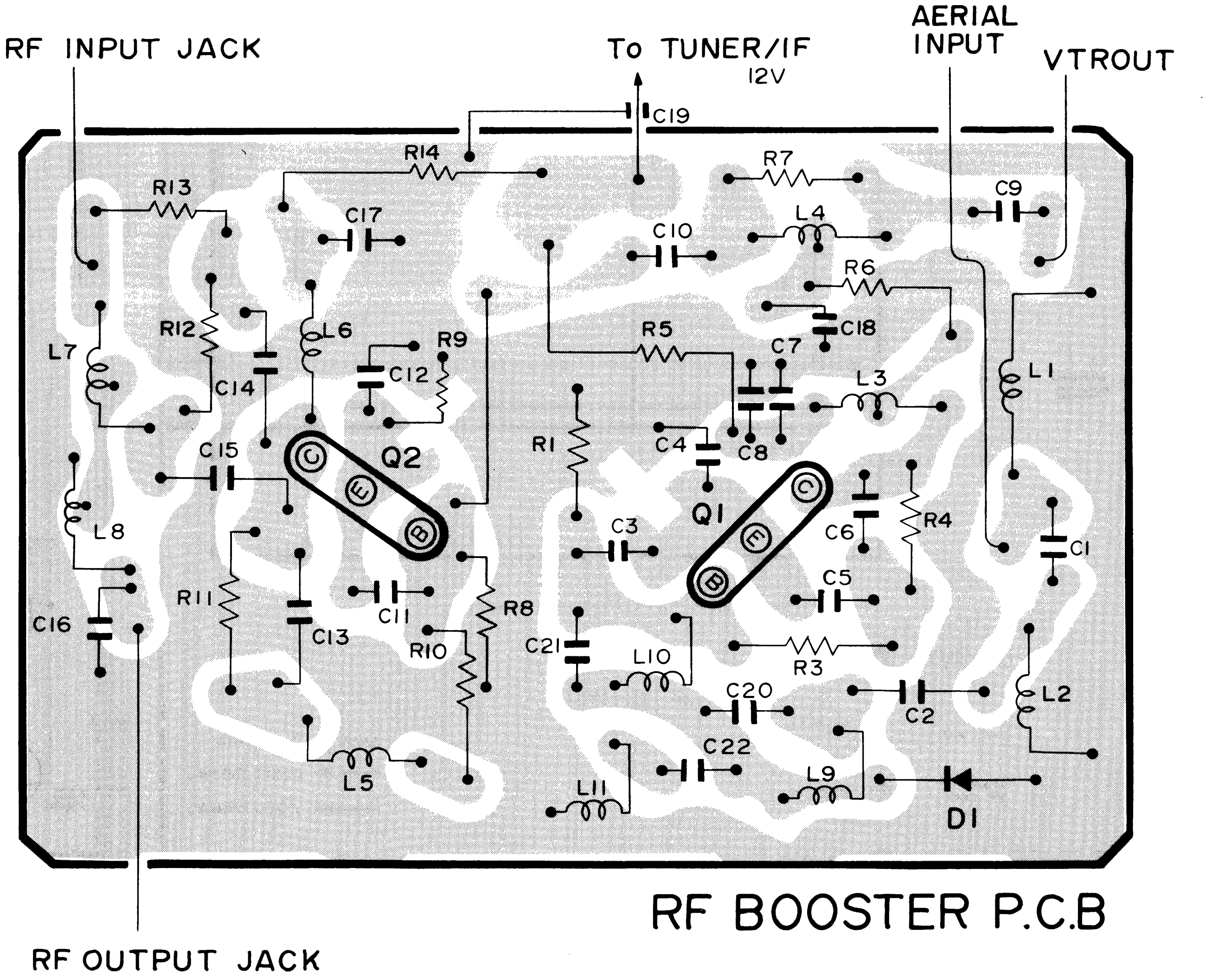
MODE, AND
IN RECORD MODE.



UHF TUNER
UHF ANT Input
Q101
Q102
Q103
Q143
Q144
D101
D102
D103
D154
ZD101
FB-1
CT101
CT102
CT103
L101
L103
L104
L105
L106
L107
L108
L109
L110
L115
L117
L181
L182
L183
BU
AGC
VT-U
BM
IF OUT
TP
To IF P.C.B
TUNER PACK P.C.B



AERIAL INPUT
VTR OUT
RF OUTPUT JACK
RF INPUT JACK To TUNER/IF
12V
C1 50P
C2 50P
L9
L10
C20 27P
C21 27P
C22 33P
D1 1S953
L11
L1
L2
R3 220~470
R4 2.2K
C5 0~5P
C6 1000P
Q1 2SC-2570A
L3
R6 12~33
C3 0~3P
R1 470
C4 1~9P
R2 15
C7 1000
R5 100
C8 0~5P
L4
C9 1000P
R7 220
C10 1000P
L5
R11 1.8K
C13 1000P
R10 560~1.5K
C11 0~5P
R8 560
C12 1~9
Q2 2SC-2570A
L6
R9 15
C17 1000P
C14 1000P
R12 470
C15 0~3P
L7
R13 470
L8
R14 120
C16 0~3P
C16 1000P
C19 1000P
RF BOOSTER P.C.B

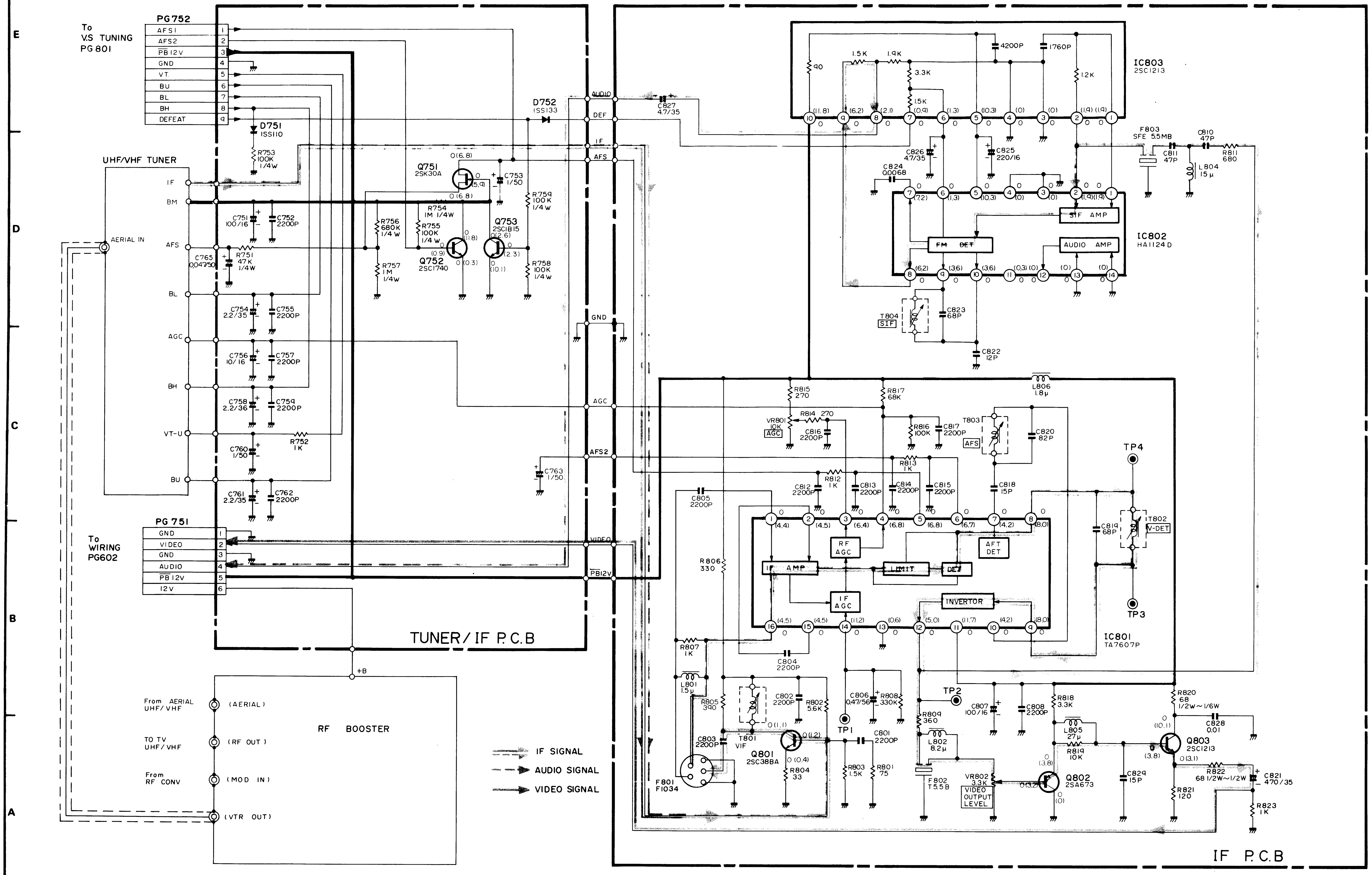


RF INPUT JACK
To TUNER/IF 12V
AERIAL INPUT
VTROUT
C19
R14
R7
R13
C17
C10
L4
C9
R6
C18
R12
L6
R9
R5
C7
L7
C14
C12
L3
L1
R1
C4
C8
C15
Q2
C
E
B
Q1
C6
R4
L8
C3
C1
C5
R11
C11
R8
C16
C13
R10
C21
L10
R3
C20
C2
L2
L5
C22
L11
L9
D1
RF OUTPUT JACK

RF BOOSTER P.C.B

TUNER/IF [Except For BS model]

SCHEMATIC DIAGRAMS	PAGES	SCHEMATIC DIAGRAM	PAGES
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V-S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		



E
D
C
B
A
To V.S TUNING PG801
PG752
AFS1
AFS2
PB12V
GND
VT
BU
BL
BH
DEFEAT
UHF/VHF TUNER
IF
BM
AFS
BL
AGC
BH
VT-U
BU
AERIAL IN
D751 1SS110
R753 100K 1/4W
C751 100/16
C752 2200P
C765 0.047/50
R751 47K 1/4W
C754 2.2/35
C755 2200P
C756 10/16
C757 2200P
C758 2.2/36
C759 2200P
C760 1/50
R752 1K
C761 2.2/35
C762 2200P
To WIRING PG602
PG751
GND
VIDEO
GND
AUDIO
PB12V
12V
Q751 2SK30A
C753 1/50
R754 1M 1/4W
R756 680K 1/4W
R755 100K 1/4W
Q752 2SC1740
Q753 2SC1815
R757 1M 1/4W
R759 100K 1/4W
R758 100K 1/4W
D752 1SS133
AUDIO
DEF
IF
AFS
GND
AGC
AFS2
C763 1/50
VIDEO
PB12V
TUNER/IF P.C.B
+B
From AERIAL UHF/VHF
(AERIAL)
TO TV UHF/VHF
(RF OUT)
From RF CONV
(MOD IN)
(VTR OUT)
RF BOOSTER
IF SIGNAL
AUDIO SIGNAL
VIDEO SIGNAL
C827 4.7/35
IC803 2SC1213
4200P
1760P
1.5K
1.9K
3.3K
1.5K
1.2K
C826 4.7/35
C825 220/16
C824 0.0068
F803 SFE 5.5MB
C810 47P
C811 47P
R811 680
L804 15μ
IC802 HA1124D
SIF AMP
FM DET
AUDIO AMP
T804 SIF
C823 68P
C822 12P
R815 270
R817 68K
L806 1.8μ
VR801 10K AGC
R814 270
C816 2200P
R816 100K
C817 2200P
T803 AFS
C820 82P
TP4
R813 1K
R812 1K
C812 2200P
C813 2200P
C814 2200P
C815 2200P
C818 15P
C805 2200P
C819 68P
T802 V-DET
RF AGC
AFT DET
IF AMP
LIMIT
DET
R806 330
IF AGC
INVERTOR
TP3
IC801 TA7607P
R807 1K
C804 2200P
L801 1.5μ
R805 390
T801 VIF
C802 2200P
R802 5.6K
C806 0.47/56
R808 330K
TP2
C807 100/16
C808 2200P
R818 3.3K
R820 68 1/2W~1/6W
C828 0.01
C803 2200P
Q801 2SC388A
TP1
C801 2200P
R809 360
L802 8.2μ
L805 27μ
R819 10K
Q803 2SC1213
R804 33
R803 1.5K
R801 75
F802 T5.5B
VR802 3.3K VIDEO OUTPUT LEVEL
Q802 2SA673
C829 15P
R822 68 1/2W~1/2W
C821 470/35
R821 120
R823 1K
F801 F1034
IF P.C.B

※VOLTAGES ARE MEASURED IN PLAY MODE,AND VOLTAGES IN( ) ARE MEASURED IN RECORDE MODE

1 2 3 4 5 6 7 8

SCHEMATIC DIAGRAMS	PAGES	SCHEMATIC DIAGRAM	PAGES
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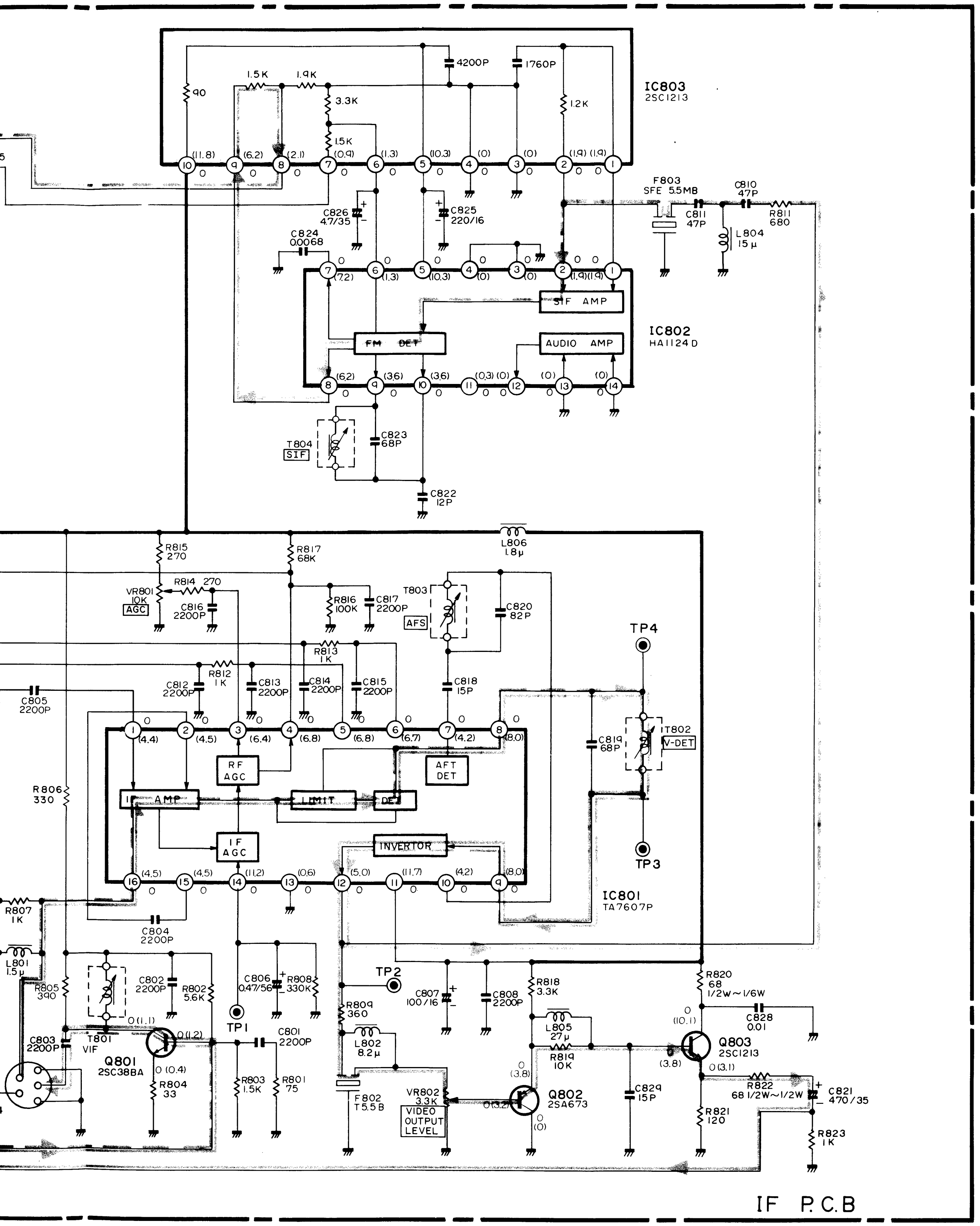
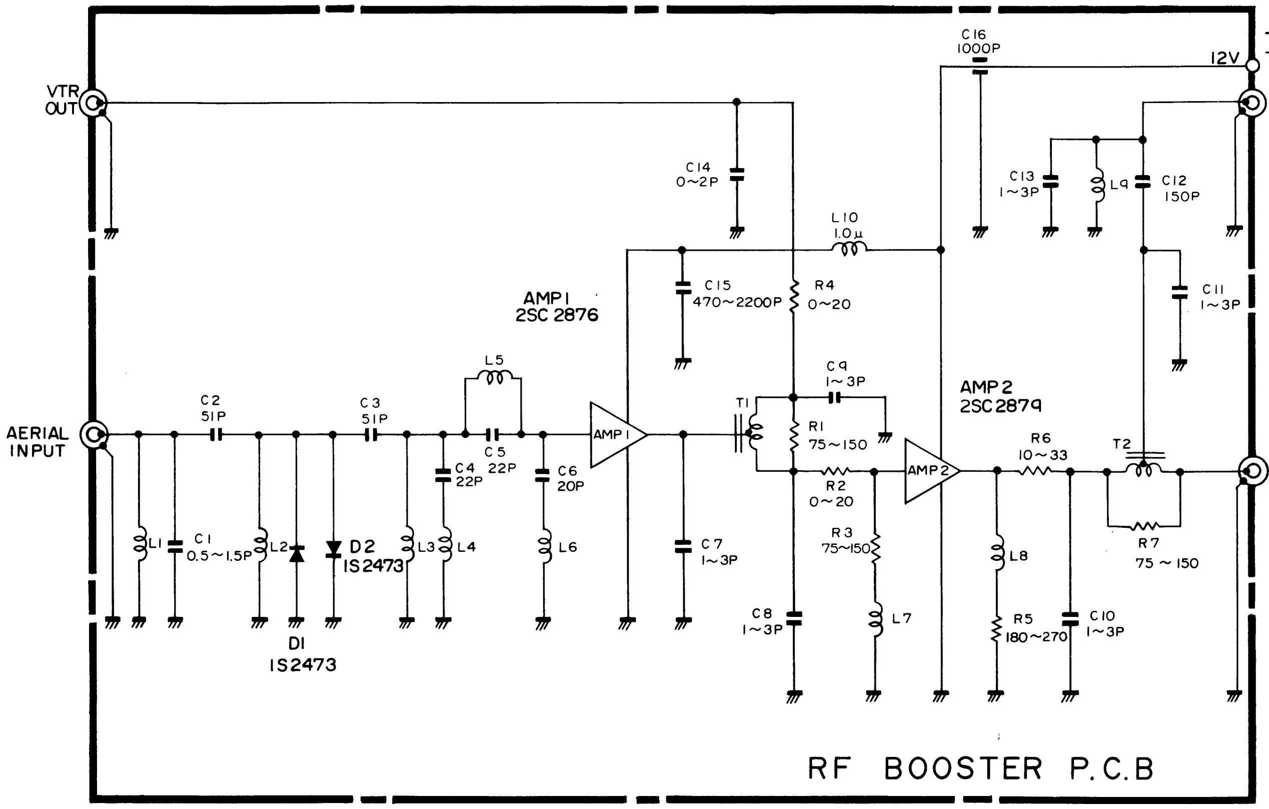
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		



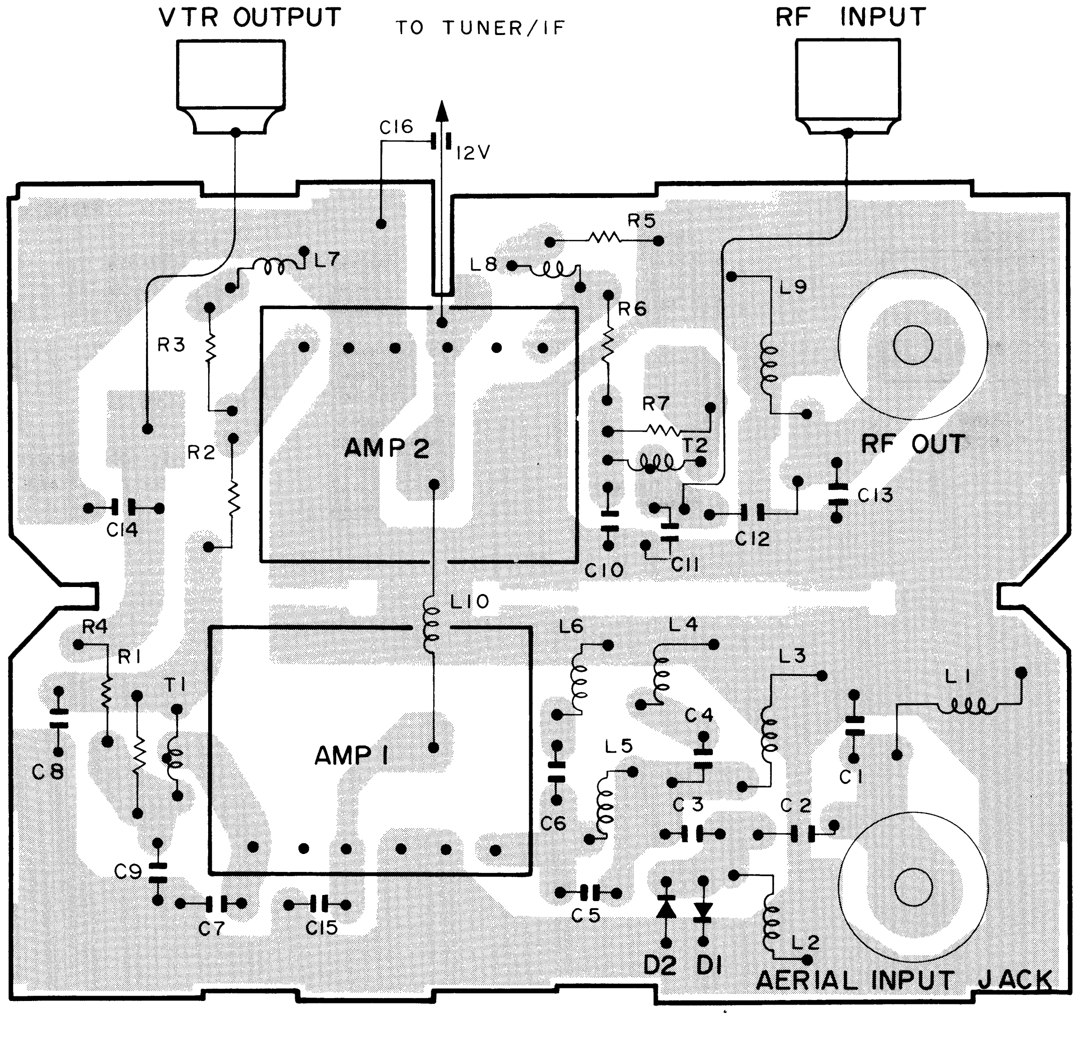
IC803
2SC1213
IC802
HA1124D
SIF AMP
FM DET
AUDIO AMP
F803
SFE 5.5MB
C810 47P
C811 47P
R811 680
L804 15μ
C826 4.7/35
C825 220/16
C824 .00068
C823 68P
C822 12P
T804 SIF
4200P
1760P
1.5K
1.9K
3.3K
1.5K
12K
90
R815 270
R817 68K
L806 1.8μ
VR801 10K AGC
R814 270
C816 2200P
R816 100K
C817 2200P
T803 AFS
C820 82P
R813 1K
R812 1K
C812 2200P
C813 2200P
C814 2200P
C815 2200P
C818 15P
C805 2200P
TP4
TP3
T802 V-DET
C819 68P
IF AMP
RF AGC
LIMIT
DET
AFT DET
IF AGC
INVERTOR
IC801
TA7607P
R806 330
R807 1K
C804 2200P
L801 1.5μ
R805 390
C803 2200P
T801 VIF
C802 2200P
R802 5.6K
Q801 2SC388A
R804 33
C806 0.47/50
R808 330K
TP1
C801 2200P
R803 1.5K
R801 75
TP2
R809 360
L802 8.2μ
F802 T5.5B
C807 100/16
C808 2200P
R818 3.3K
L805 27μ
R819 10K
VR802 3.3K VIDEO OUTPUT LEVEL
Q802 2SA673
C829 15P
R820 68 1/2W~1/6W
C828 0.01
Q803 2SC1213
R822 68 1/2W~1/2W
C821 470/35
R821 120
R823 1K
IF P.C.B

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORDE MODE

RF BOOSTER



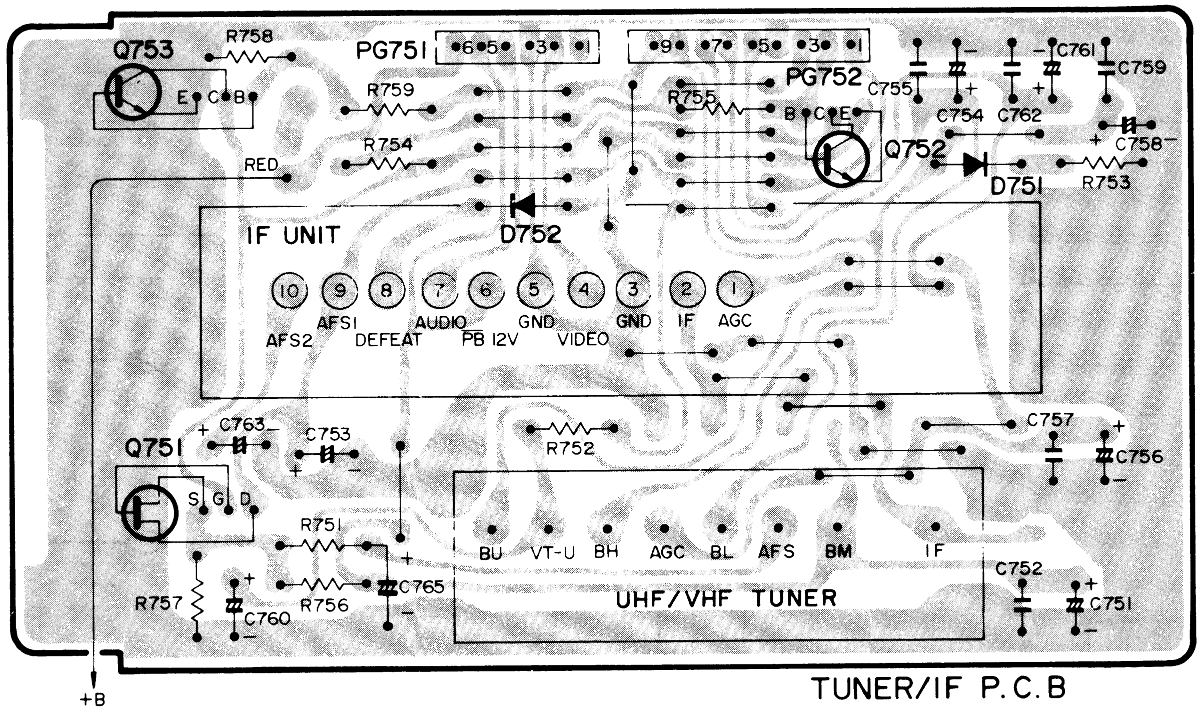
VTR OUT
AERIAL INPUT
C16 1000P
12V
To TUNER/IF
RF OUTPUT JACK
RF. INPUT JACK
C14 0~2P
C13 1~3P
L9
C12 150P
L10 1.0μ
C11 1~3P
AMP1 2SC2876
C15 470~2200P
R4 0~20
C9 1~3P
AMP2 2SC2879
C2 51P
C3 51P
L5
C5 22P
C4 22P
C6 20P
T1
R1 75~150
R2 0~20
R6 10~33
T2
R7 75~150
L1
C1 0.5~1.5P
L2
D2 1S2473
L3
L4
L6
C7 1~3P
R3 75~150
L8
D1 1S2473
C8 1~3P
L7
R5 180~270
C10 1~3P
RF BOOSTER P.C.B



VTR OUTPUT
TO TUNER/IF
RF INPUT
C16
12V
R5
L7
L8
R6
L9
R3
AMP 2
R7
T2
RF OUT
R2
C14
C13
C10
C11
C12
L10
R4
R1
L6
L4
L3
L1
T1
C4
C8
AMP 1
L5
C6
C3
C2
C1
C9
C7
C15
C5
D2
D1
L2
AERIAL INPUT JACK

RF BOOSTER P.C.B

TUNER/IF


Q753
R758
PG751
⑥ ⑤ ③ ①
⑨ ⑦ ⑤ ③ ①
C761
C759
R759
PG752
C755
E C B
R755
B C E
C754
C762
R754
Q752
C758
RED
D751
R753
D752
IF UNIT
⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
AFS1
AUDIO
GND
GND
IF
AGC
AFS2
DEFEAT
PB 12V
VIDEO
Q751
C763
C753
C757
C756
R752
S G D
R751
BU
VT-U
BH
AGC
BL
AFS
BM
IF
C765
C752
C751
R757
R756
C760
UHF/VHF TUNER
+B

TUNER/IF P.C.B

To RF BOOSTER

PG751

1	GND
2	VIDEO
3	GND
4	AUDIO
5	$\overline{\text{PB}}$ 12V
6	12V

To WIRING PG 602

PG752

1	AFS 1
2	AFS 2
3	$\overline{\text{PB}}$ 12V
4	GND
5	VT
6	BU
7	BL
8	BH
9	DEFEAT

To V.S TUNING PG 801

Q751

S	0 (6.8)
G	0 (5.9)
D	0 (6.8)

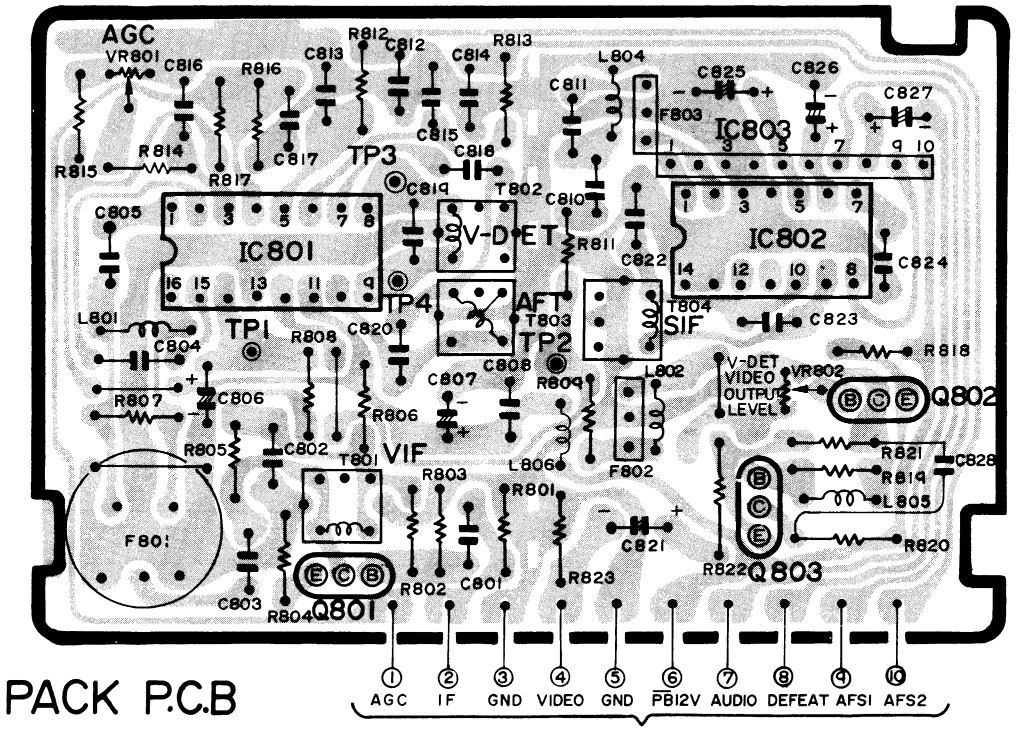
Q752

E	0 (0.3)
C	0 (11.8)
B	0 (0.9)

Q753

E	0 (10.1)
C	0 (2.6)
B	0 (2.3)

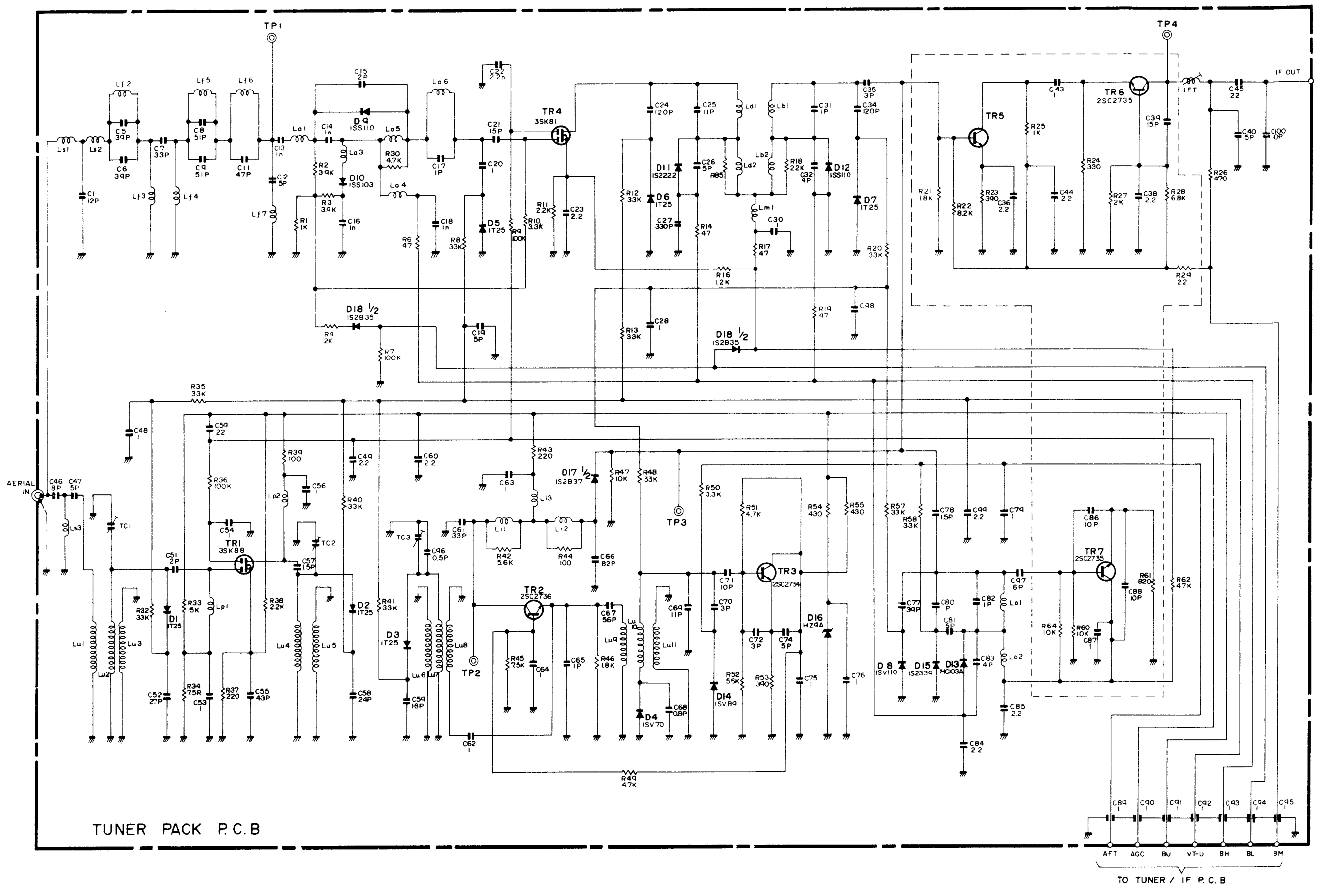
※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


AGC
VR801
C816
R816
C813
R812
C812
C814
R813
C811
L804
C825
C826
C827
FB03
IC803
R815
R814
C817
TP3
C815
C818
R817
C819
T802
C810
C805
IC801
V-DET
R811
IC802
C822
C824
L801
TP4
AFT
T803
T804
SIF
C823
C804
TP1
R808
C820
TP2
R818
R807
C806
C807
C808
R809
L802
V-DET VIDEO OUTPUT LEVEL
VR802
Q802
R806
R805
C802
T801
VIF
L806
F802
R821
C828
R803
R801
R819
L805
F801
C821
R820
C803
C801
R823
R822
Q803
R804
Q801
R802
E C B
B C E
① AGC
② IF
③ GND
④ VIDEO
⑤ GND
⑥ PB12V
⑦ AUDIO
⑧ DEFEAT
⑨ AFS1
⑩ AFS2

TUNER/IF P.C.B

IF PACK P.C.B

TUNER PACK


TP1
TP4
TP3
TP2
TR1
TR2
TR3
TR4
TR5
TR6
TR7
AERIAL IN
IF OUT
TUNER PACK P.C.B
AFT
AGC
BU
VT-U
BH
BL
BM
TO TUNER / IF P.C.B

IC801

1	2	3	4	5	6	7	8
0 (4.4)	0 (4.5)	0 (6.4)	0 (6.8)	0 (6.8)	0 (6.7)	0 (4.2)	0 (8.0)
16	15	14	13	12	11	10	9
0 (4.5)	0 (4.5)	0 (11.2)	0 (0.6)	0 (5.0)	0 (11.7)	0 (4.2)	0 (8.0)

IC802

1	2	3	4	5	6	7
0 (1.9)	0 (1.9)	0 (0)	0 (0)	0 (10.3)	0 (1.3)	0 (7.2)
14	13	12	11	10	9	8
0 (0)	0 (0)	0 (0)	0 (0.3)	0 (3.6)	0 (3.6)	0 (6.2)

IC803

1	2	3	4	5	6	7	8	9	10
0 (1.9)	0 (1.9)	0 (0)	0 (0)	0 (10.3)	0 (1.3)	0 (0.9)	0 (2.1)	0 (6.2)	0 (11.8)

Q801

B	0 (1.2)
C	0 (1.1)
E	0 (0.4)

Q802

B	0 (3.2)
C	0 (0)
E	0 (3.8)

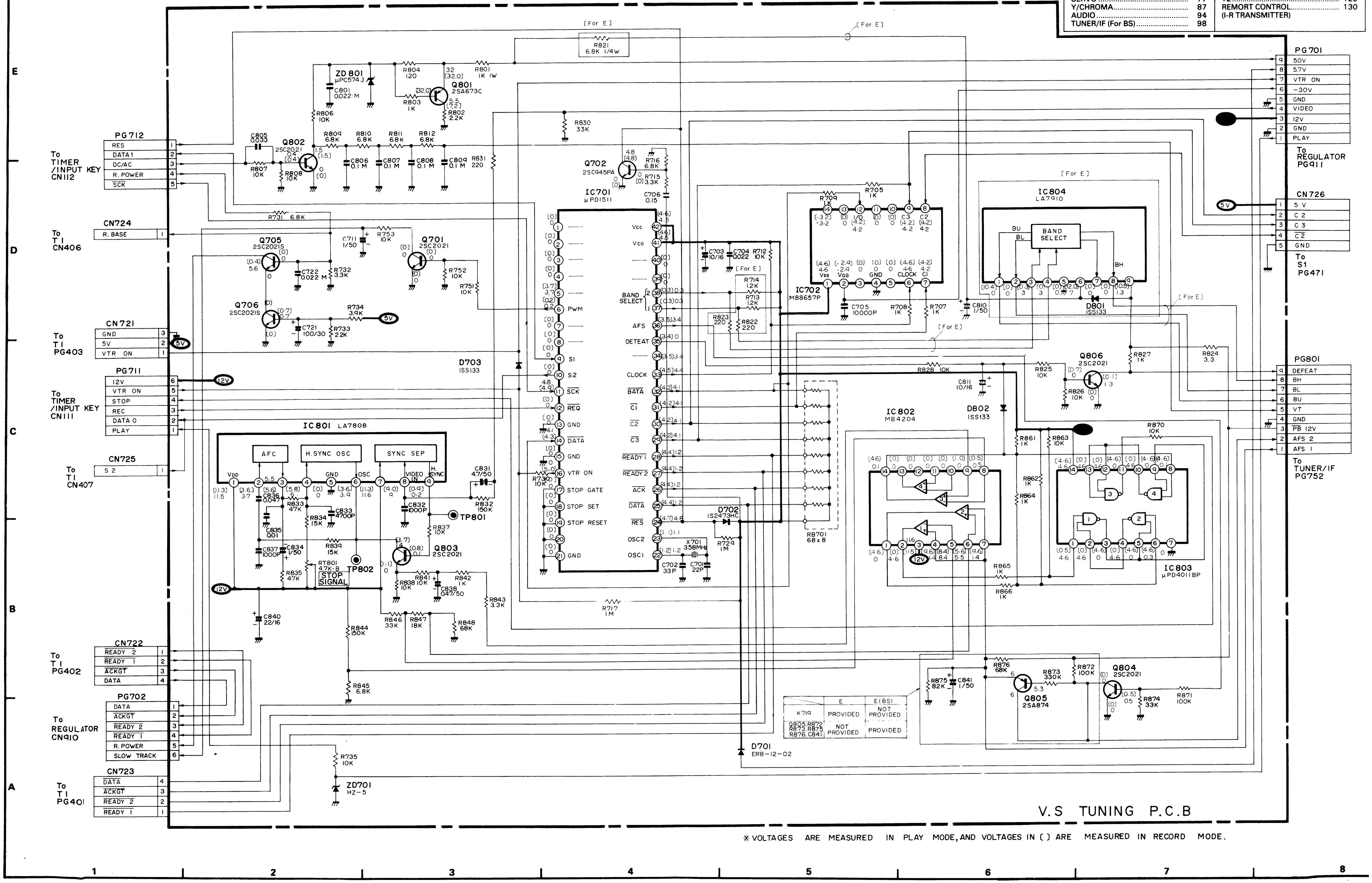
Q803

B	0 (3.8)
C	0 (10.1)
E	0 (3.1)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

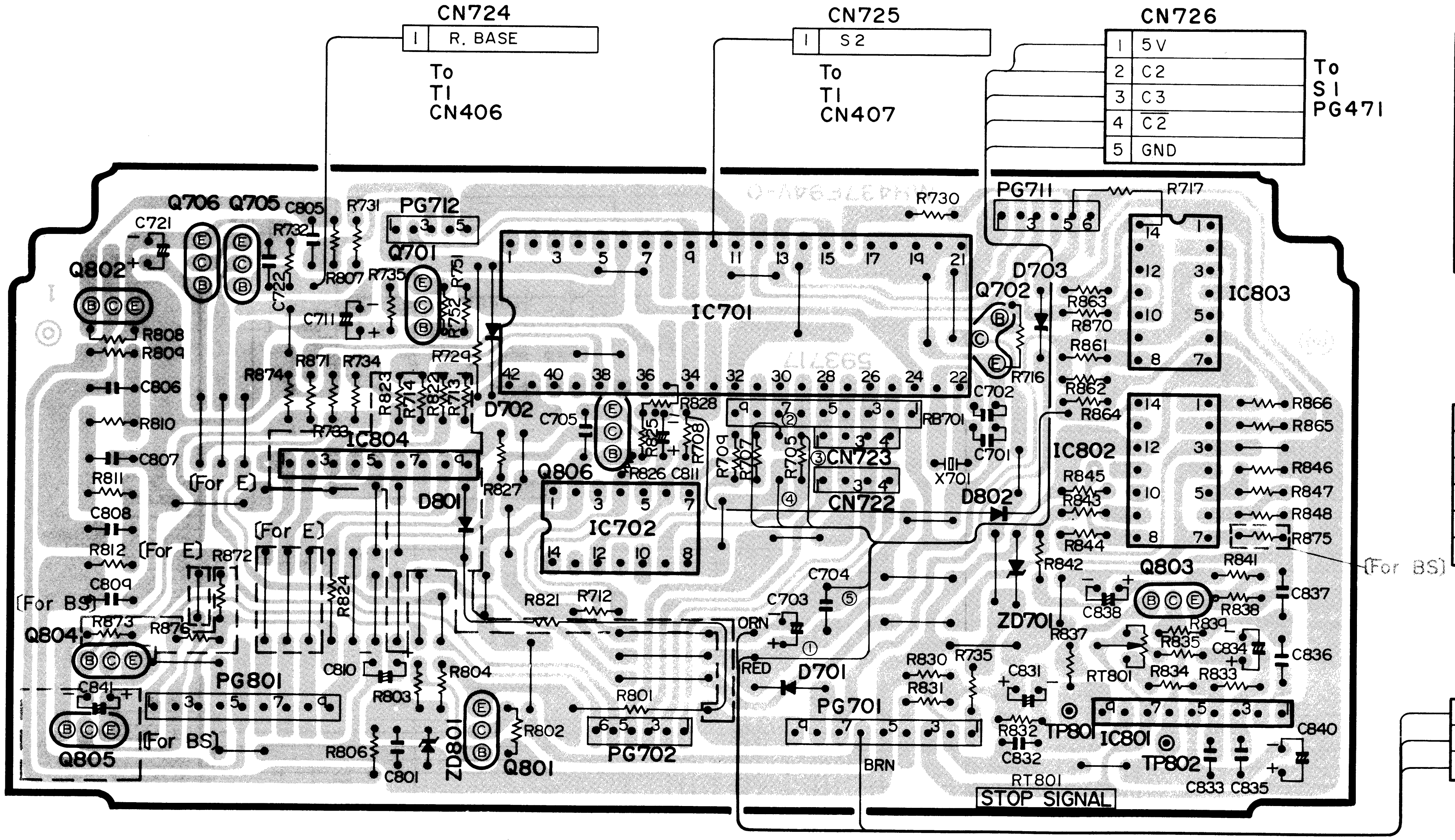
V·S TUNING

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		



V.S TUNING P.C.B
PG712
RES
DATA 1
DC/AC
R. POWER
SCK
To TIMER /INPUT KEY CN112
CN724
R. BASE
To T1 CN406
CN721
GND
5V
VTR ON
To T1 PG403
PG711
12V
VTR ON
STOP
REC
DATA 0
PLAY
To TIMER /INPUT KEY CN111
CN725
S 2
To T1 CN407
CN722
READY 2
READY 1
ACKGT
DATA
To T1 PG402
PG702
DATA
ACKGT
READY 2
READY 1
R. POWER
SLOW TRACK
To REGULATOR CN910
CN723
DATA
ACKGT
READY 2
READY 1
To T1 PG401
PG701
50V
5.7V
VTR ON
-30V
GND
VIDEO
12V
GND
PLAY
To REGULATOR PG911
CN726
5 V
C 2
C 3
C2
GND
To S1 PG471
PG801
DEFEAT
BH
BL
BU
VT
GND
PB 12V
AFS 2
AFS 1
To TUNER/IF PG752
IC701 µPD1511
IC702 M88657P
IC801 LA7808
AFC
H.SYNC OSC
SYNC SEP
IC802 MB4204
IC803 µPD4011BP
IC804 LA7910
BAND SELECT
Q801 2SA673C
Q802 2SC2021
Q701 2SC2021
Q702 2SC945PA
Q705 2SC2021S
Q706 2SC2021S
Q803 2SC2021
Q804 2SC2021
Q805 2SA874
Q806 2SC2021
ZD801 µPC574J
ZD701 HZ-5
D701 ERB-12-02
D702 1S2473HC
D703 1SS133
D801 1SS133
D802 1SS133
X701 3.58MHz
RB701 68×8
TP801
TP802
RT801 4.7K-B
STOP SIGNAL
R821 6.8K 1/4W
(For E)
K719 | PROVIDED | NOT PROVIDED
Q805 R872 R873 R875 R876 C841 | NOT PROVIDED | PROVIDED
E
E(BS)
1
2
3
4
5
6
7
8
A
B
C
D
E

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.



CN724
CN725
CN726
PG711
R717
R730
PG712
Q706
Q705
C805
R731
C721
Q802
C722
R732
R807
R735
Q701
R751
C711
R752
R808
R809
R871
R734
R729
IC701
Q702
D703
R863
R870
R861
IC803
R874
C806
R823
R714
R713
D702
C705
R828
R716
R862
R864
C702
RB701
R866
R865
R810
R733
IC804
R709
R707
R705
CN723
C701
IC802
R846
R847
R848
R875
C807
R811
Q806
R826
C811
CN722
X701
D802
R845
R843
R844
(For E)
D801
R827
IC702
C808
R812
(For E)
R872
(For E)
R824
C704
ZD701
R842
Q803
R841
C837
(For BS)
C809
(For BS)
R821
R712
C703
C838
R838
R873
R876
ORN
R837
R839
R835
C834
C836
Q804
C810
R804
R830
R735
C831
RED
D701
R834
R833
RT801
PG801
C841
R803
R801
R831
PG701
R832
TP801
IC801
C840
Q805
(For BS)
R806
ZD801
R802
Q801
PG702
C832
TP802
C801
BRN
RT801
STOP SIGNAL
C833
C835

CN724	
1	R. BASE

To
T1
CN406

CN725	
1	S2

To
T1
CN407

CN726	
1	5V
2	C2
3	C3
4	C2
5	GND

To
S1
PG471

V. S TUNING P. C. B

PG701

1	PLAY
2	GND
3	12V
4	VIDEO
5	GND
6	−30V
7	VTR ON
8	5.7V
9	50V

To
REGULATOR
PG911
VIA CN701

PG702

1	DATA
2	$\overline{\text{ACKGT}}$
3	$\overline{\text{READY 2}}$
4	$\overline{\text{READY 1}}$
5	R. POWER
6	SLOW TRACK

To
REGULATOR
CN910

CN721

1	VTR ON
2	5V
3	GND

To
T1
PG403

PG711

1	PLAY
2	DATA 0
3	REC
4	STOP
5	VTR ON
6	12V

To
TIMER/INPUT KEY
CN111

PG712

1	RES
2	DATA 1
3	DC/AC
4	R. POWER
5	$\overline{\text{SCK}}$

To
TIMER/INPUT KEY
CN112

CN722

1	$\overline{\text{READY 2}}$
2	$\overline{\text{READY 1}}$
3	$\overline{\text{ACKGT}}$
4	DATA

To
T1
PG402

CN723

1	$\overline{\text{READY 1}}$
2	$\overline{\text{READY 2}}$
3	$\overline{\text{ACKGT}}$
4	$\overline{\text{DATA}}$

To
T1
PG401

PG801

1	AFS 1
2	AFS 2
3	$\overline{\text{PB}}$ 12V
4	GND
5	VT
6	BU
7	BL
8	BH
9	DEFEAT

To
TUNER/IF
PG752

IC701

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0 [0]	0 [0]	0 [0]	0 [0]	3.7[3.7]	0.2[0.2]	0 [0]	0 [0]	0 [0]	0 [0]	4.8[4.9]	0 [0]	0 [0]	4.1[4.3]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22
4.5[4.6]	4.5[4.6]	0 [0]	0 [0]	0.3[0.3]	0.3[0.3]	3.4[3.5]	0[3.4]	3.4[3.5]	4.4[4.5]	4.1[4.2]	4.1[4.2]	4.1[4.2]	4.1[4.2]	1.2[4.4]	1.2[4.4]	1.2[4.4]	1.2[4.4]	4.8[4.7]	1.1[1.1]	1.2[1.2]

IC702

1	2	3	4	5	6	7
4.6[4.6]	-2.9[2.9]	0 [0]	0 [0]	0 [0]	4.6[4.6]	4.2[4.2]
14	13	12	11	10	9	8
-3.2[-3.2]	0 [0]	4.2[4.2]	0 [0]	0 [0]	4.2[4.2]	4.2[4.2]

IC801

9	8	7	6	5	4	3	2	1
0.2[0.9]	9 [9.0]	11.6[11.3]	3.9[3.6]	0 [0]	6 [5.8]	5.5[5.6]	3.7[3.6]	11.5[11.3]

IC804

1	2	3	4	5	6	7	8	9
0[10.4]	0 [0]	3 [0.3]	3 [0]	0 [0]	7[12.0]	0 [0]	0 [0]	1.3[0.5]

IC802

14	0.1[4.6]	1	0 [0]
13	0 0	2	4.6 0
12	0 [0]	3	11.6[11.5]
11	0 [0]	4	1.4[9.6]
10	0 [0]	5	8.4[8.4]
9	0 [1.0]	6	5.5[5.6]
8	0.5[0.5]	7	1.4[9.6]

IC803

14	4.6[4.6]	1	4.6[0.5]
13	4.6[0]	2	4.6[0]
12	4.6[0]	3	0[4.6]
11	0 [4.6]	4	4.6 [0]
10	4.6[0]	5	0 [4.6]
9	0 [4.6]	6	0.3[4.6]
8	0.1[4.6]	7	0

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN [ ] ARE MEASURED IN RECORD MODE.

Q806

B	0 [0.7]
C	1.3 [0.1]
E	0 [0]

Q701

B	0 [0]
C	0 [0]
E	0 [0]

Q702

B	0 [0]
C	4.7 [4.8]
E	0 [0]

Q705

B	0 [0]
C	5.6[0.4]
E	0 [0]

Q706

B	0.7[0.7]
C	0 [0]
E	0 [0]

Q801

B	[32.0]
C	5.5[7.2]
E	32[32.0]

Q802

B	0.4[0.4]
C	0 [0]
E	1.5[1.5]

Q803

B	0.1[0.8]
C	4 [3.7]
E	0[1.1]

Q804

B	0.5[0.5]
C	0 [0]
E	0 [0]

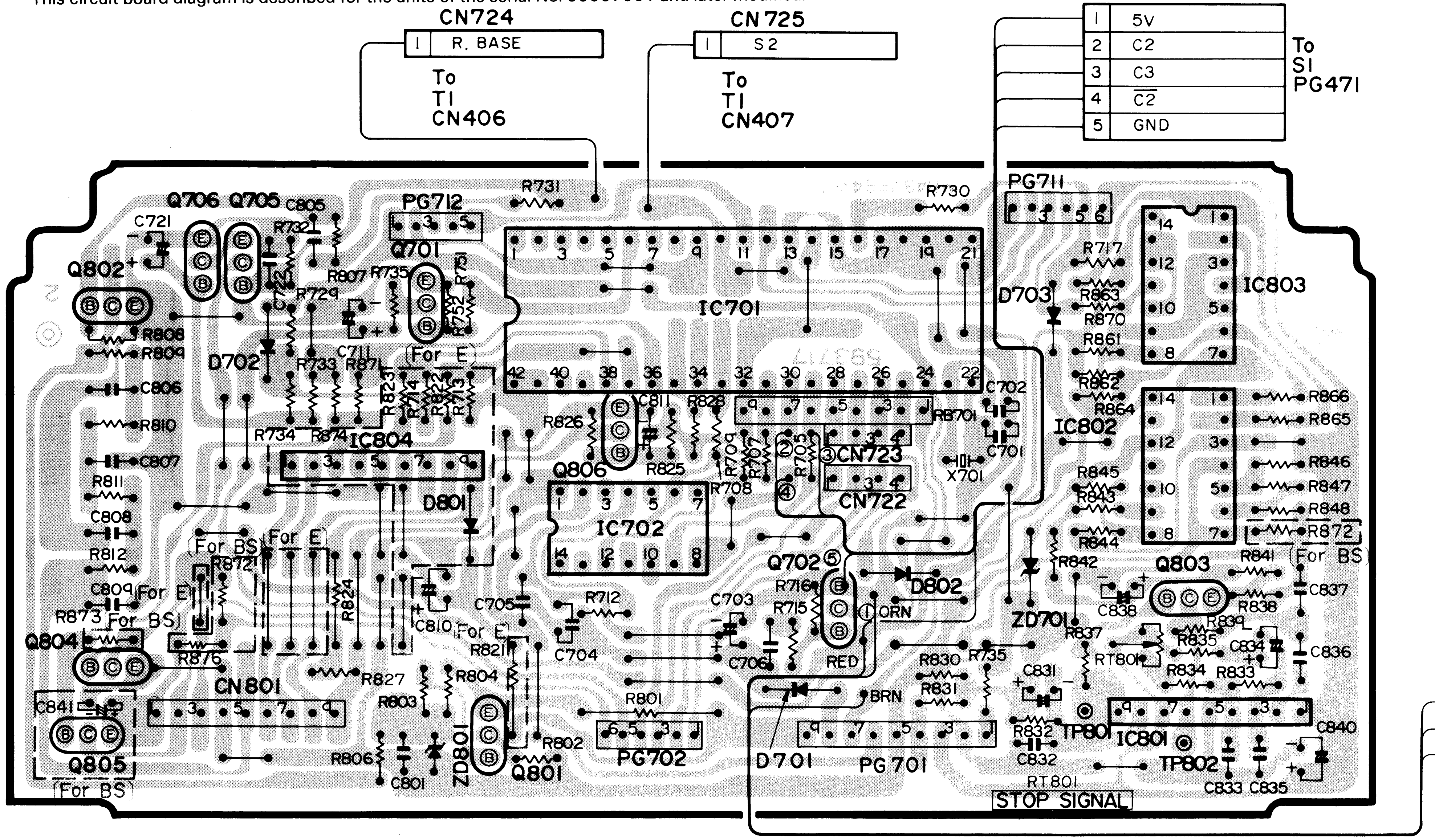
Q805

B	5.3
C	6.0
E	6.0

UT KEY

UT KEY

* This circuit board diagram is described for the units of the serial No. 00007501 and later modified.


CN724
1 R. BASE
To
T1
CN406
CN725
1 S2
To
T1
CN407
CN726
1 5V
2 C2
3 C3
4 C2
5 GND
To
S1
PG471
Q706 Q705 C805
C721
Q802
R808
R809
C806
R810
C807
R811
C808
R812
C809 (For E)
R873 (For BS)
Q804
C841
Q805
(For BS)
R731
PG712
Q701
R732
R807
R735
R751
R729
R753
R752
D702
C711
R733
R871
(For E)
R823
R714
R822
R713
R734
R874
IC804
D801
(For BS)
(For E)
R872
R876
R824
C810
(For E)
C705
R821
CN801
R827
R804
R803
R806
C801
ZD801
Q801
R802
IC701
R730
PG711
C811
R828
R826
Q806
R825
IC702
R708
R704
R707
R705
R8701
CN723
CN722
C702
C701
X701
R712
C703
C704
C706
R716
R715
Q702
RED
ORN
D802
BRN
R801
PG702
D701
PG701
D703
R717
R863
R870
R861
R862
R864
IC803
IC802
R866
R865
R846
R847
R848
R872
(For BS)
R845
R843
R844
R842
R841
ZD701
Q803
C837
C838
R838
R839
R837
RT801
R835
C834
C836
R830
R735
R831
C831
R834
R833
R832
TP801
IC801
TP802
C840
C832
C833 C835
RT801
STOP SIGNAL

V. S TUNING P. C. B

CN701

1	PLAY
2	GND
3	12V
4	VIDEO
5	GND
6	−30V
7	VTR ON
8	5.7V
9	50V

To
REGULATOR
PG911
VIA CN701

PG702

1	DATA
2	ACKGT
3	READY 2
4	READY 1
5	R. POWER
6	SLOW TRACK

To
REGULATOR
CN910

CN721

1	VTR ON
2	5 V
3	GND

To
T1
PG403

PG711

1	PLAY
2	DATA 0
3	REC
4	STOP
5	VTR ON
6	12V

To
TIMER/INPUT KEY
CN111

PG712

1	RES
2	DATA 1
3	DC/AC
4	R. POWER
5	SCK

To
TIMER/INPUT KEY
CN112

CN722

1	READY 2
2	READY 1
3	ACKGT
4	DATA

To
T1
PG402

CN723

1	READY 1
2	READY 2
3	ACKGT
4	DATA

To
T1
PG401

IC701

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0(0)	0 (0)	0 (0)	0 (0)	3.7(3.7)	0.2(0.2)	0 (0)	0 (0)	0 (0)	0 (0)	4.8(4.9)	0 (0)	0 (0)	4.1(4.3)	0 (0)	0 (5.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
42	**41**	**40**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**26**	**25**	**24**	**23**	**22**
4.5(4.6)	4.5(4.6)	0 (0)	0 (0)	0.3(0.3)	0.3(0.3)	3.4(3.5)	0 (3.4)	3.4(3.5)	4.4(4.5)	4.1(4.2)	4.1(4.2)	4.1(4.2)	4.1(4.2)	1.2(4.4)	1.2(4.4)	1.2(4.4)	1.2(4.4)	4.8(4.7)	1.1 (1.1)	1.2(1.2)

Q805

B	5.3
C	6.0
E	6.0

IC702

1	2	3	4	5	6	7
4.6(4.6)	−2.9(2.9)	0 (0)	0 (0)	0 (0)	4.6(4.6)	4.2(4.2)
14	**13**	**12**	**11**	**10**	**9**	**8**
−3.2(−3.2)	0 (0)	4.2(4.2)	0 (0)	0 (0)	4.2(4.2)	4.2(4.2)

IC801

9	8	7	6	5	4	3	2	1
0.2(0.9)	9 (9.0)	11.6(11.3)	3.9(3.6)	0 (0)	6 (5.8)	5.5(5.6)	3.7(3.6)	11.5(11.3)

IC804

1	2	3	4	5	6	7	8	9
0(0.4)	0 (0)	3 (0.3)	3 (0)	0 (0)	7(12.0)	0 (0)	0 (0)	1.3(0.5)

IC802

14	0.1(4.6)	1	0 (4.6)
13	0 (0)	2	4.6(0)
12	0 (0)	3	11.6(11.5)
11	0 (0)	4	1.4(9.6)
10	0 (0)	5	8.4(8.4)
9	0 (1.0)	6	5.5(5.6)
8	0.5(0.5)	7	1.4(9.6)

IC803

14	4.6(4.6)	1	4.6(0.5)
13	4.6(0)	2	4.6(0)
12	4.6(0)	3	0(4.6)
11	0 (4.6)	4	4.6 (0)
10	4.6(0)	5	0 (4.6)
9	0 (4.6)	6	0.3(4.6)
8	0.1(4.6)	7	0

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

Q701

B	0 (0)
C	0 (0)
E	0 (0)

Q702

B	0 (0)
C	4.7 (4.8)
E	0 (0)

Q705

B	0 (0)
C	5.6(0.4)
E	0 (0)

Q706

B	0.7(0.7)
C	0 (0)
E	0 (0)

Q801

B	32.0)
C	5.5(7.2)
E	32(32.0)

Q802

B	0.4(0.4)
C	1.5 (1.5)
E	0 (0)

Q803

B	0.1(0.8)
C	4 (3.7)
E	0 (1.1)

Q804

B	0.5(0.5)
C	0 (0)
E	0 (0)

Q806

B	0 (0.7)
C	1.3 (0.1)
E	0 (0)

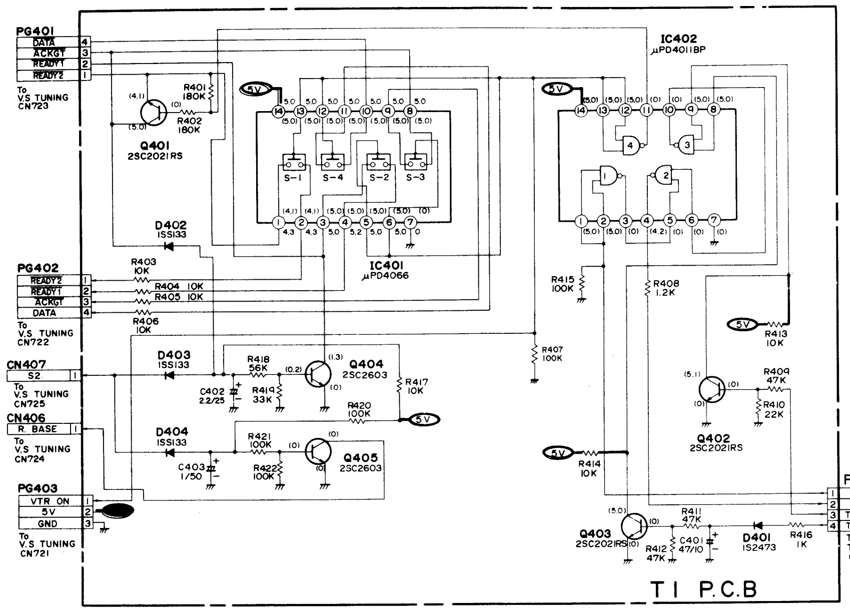
PG801

1	AFS 1
2	AFS 2
3	PB 12V
4	GND
5	VT
6	BU
7	BL
8	BH
9	DEFEAT

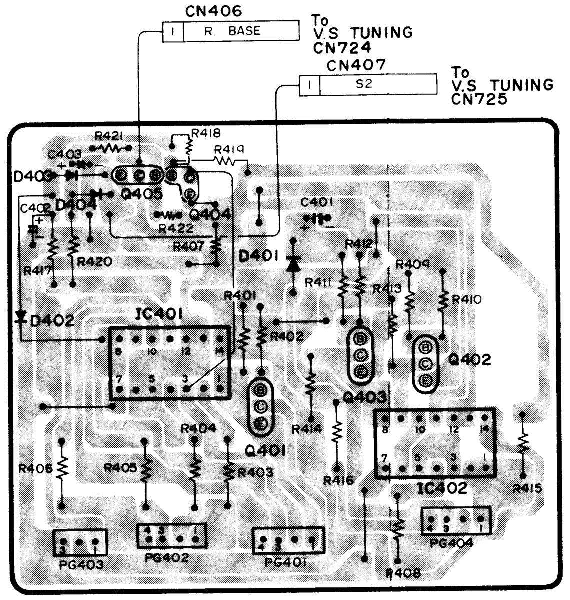
To
TUNER/IF
PG752

* This circuit board diagram is described for the units of the serial No. 00001001 and later modified.

T1


PG401
DATA
ACKGT
READY1
READY2
To V.S TUNING CN723
Q401 2SC2021RS
R401 180K
R402 180K
IC402 μPD4011BP
IC401 μPD4066
S-1 S-4 S-2 S-3
D402 1SS133
PG402
READY2
READY1
ACKGT
DATA
To V.S TUNING CN722
R403 10K
R404 10K
R405 10K
R406 10K
CN407 S2
To V.S TUNING CN725
CN406 R BASE
To V.S TUNING CN724
D403 1SS133
D404 1SS133
R418 56K
R419 33K
C402 2.2/25
Q404 2SC2603
R417 10K
R420 100K
R421 100K
R422 100K
C403 1/50
Q405 2SC2603
PG403
VTR ON
5V
GND
To V.S TUNING CN721
R415 100K
R407 100K
R408 1.2K
Q402 2SC2021RS
R409 47K
R410 22K
R413 10K
R414 10K
Q403 2SC2021RS
R411 47K
R412 47K
C401 47/10
D401 1S2473
R416 1K
PG404
3 ST
3 ST
TIMER INDI
TIMER ON
To TIMER/INPUT KEY CN103
5V
T1 P.C.B

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


CN406
R BASE
To V.S TUNING CN724
CN407
S2
To V.S TUNING CN725
R421
R418
R419
C403
D403
D404
Q405
Q404
C402
R422
R407
D401
C401
R417
R420
R412
R411
R413
R409
R410
D402
IC401
R401
R402
Q402
Q403
R414
R404
Q401
R406
R405
R403
R416
IC402
R415
PG403
PG402
PG401
PG404
R408

PG401 To V.S TUNING CN723

1	DATA
2	$\overline{\text{ACKGT}}$
3	$\overline{\text{READY1}}$
4	READY2

PG402 To V.S TUNING CN722

1	READY2
2	READY1
3	ACKGT
4	DATA

PG403 To V.S TUNING CN721

1	VTR ON
2	5V
3	GND

PG404 To TIMER CN103

1	3 ST
2	$\overline{\text{3 ST}}$
3	TIMER INDI
4	TIMER ON

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

T1 P.C.B

IC401

8	9	10	11	12	13	14
5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)
7	6	5	4	3	2	1
0(0)	5.0(5.0)	5.0(5.0)	5.2(5.0)	5.0(5.0)	4.3(4.1)	4.3(4.1)

Q401

B	(0)
C	(5.0)
E	(4.1)

Q402

B	(0)
C	(5.1)
E	(0)

Q403

B	(0)
C	(5.0)
E	(0)

Q404

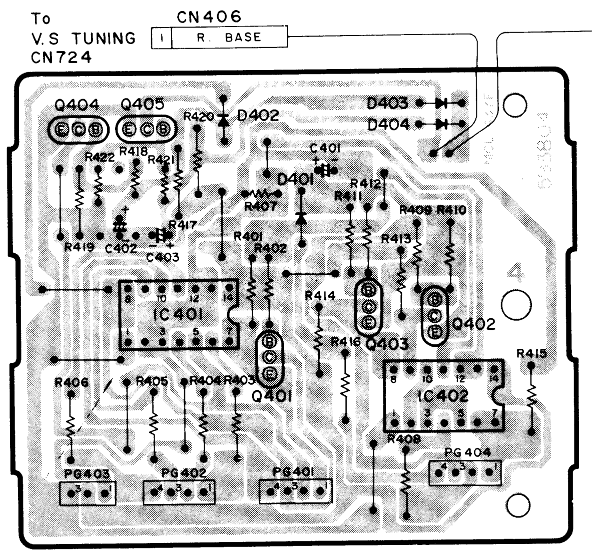
B	(0.2)
C	(1.3)
E	(0)

Q405

B	(0)
C	(0)
E	(0)

IC402

8	9	10	11	12	13	14
(5.0)	(5.0)	(0)	(0)	(5.0)	(5.0)	(5.0)
7	6	5	4	3	2	1
(0)	(0)	(0)	(4.2)	(0)	(5.0)	(5.0)


To V.S TUNING CN724
CN406
R. BASE
Q404
Q405
R420
D402
D403
D404
R422
R418
R421
C401
D401
R407
R412
R411
R409
R410
R417
R419
C402
C403
R401
R402
R413
IC401
R414
R416
Q403
Q402
R406
R405
R404
R403
Q401
R415
IC402
R408
PG403
PG402
PG401
PG404

CN407 S2 To V.S TUNING CN725

PG401 To V.S TUNING CN723

1	DATA
2	$\overline{\text{ACKGT}}$
3	$\overline{\text{READY1}}$
4	READY2

PG402 To V.S TUNING CN722

1	READY2
2	READY1
3	ACKGT
4	DATA

PG403 To V.S TUNING CN721

1	VTR ON
2	5V
3	GND

PG404 To TIMER /INPU KEY CN103

1	3 ST
2	$\overline{\text{3 ST}}$
3	TIMER INDI
4	TIMER ON

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

T1 P.C.B

IC401

8	9	10	11	12	13	14
5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)	5.0(5.0)
7	6	5	4	3	2	1
0(0)	5.0(5.0)	5.0(5.0)	5.2(5.0)	5.0(5.0)	4.3(4.1)	4.3(4.1)

Q401

B	(0)
C	(5.0)
E	(4.1)

Q402

B	(0)
C	(5.1)
E	(0)

Q403

B	(0)
C	(5.0)
E	(0)

Q404

B	(0.2)
C	(1.3)
E	(0)

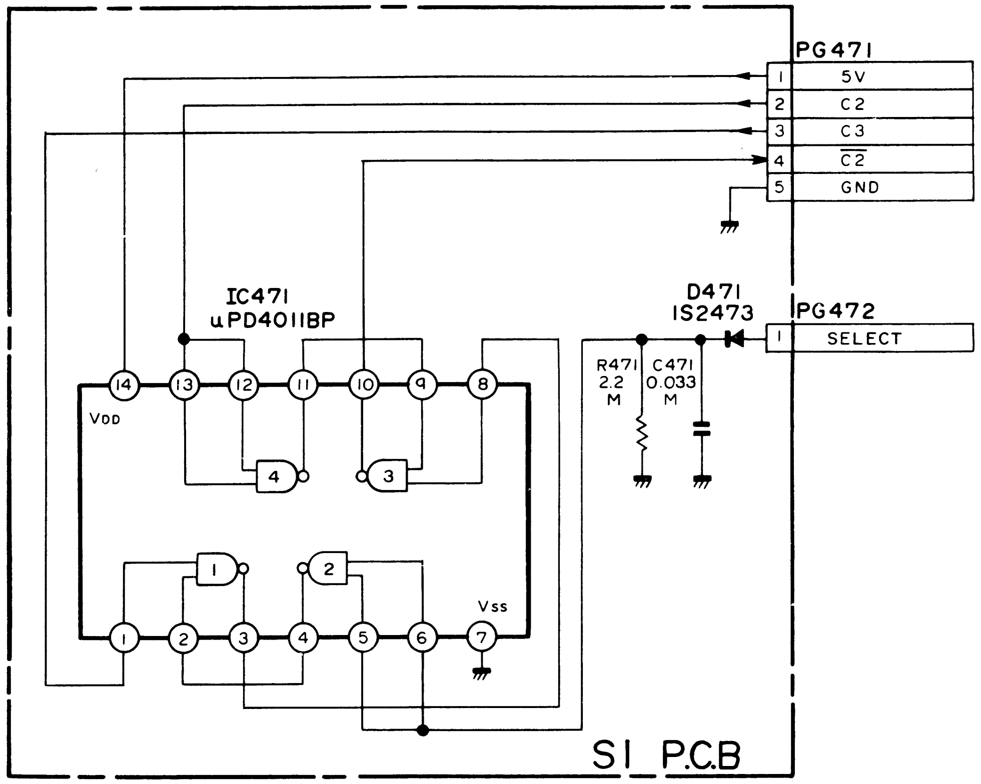
Q405

B	(0)
C	(0)
E	(0)

IC402

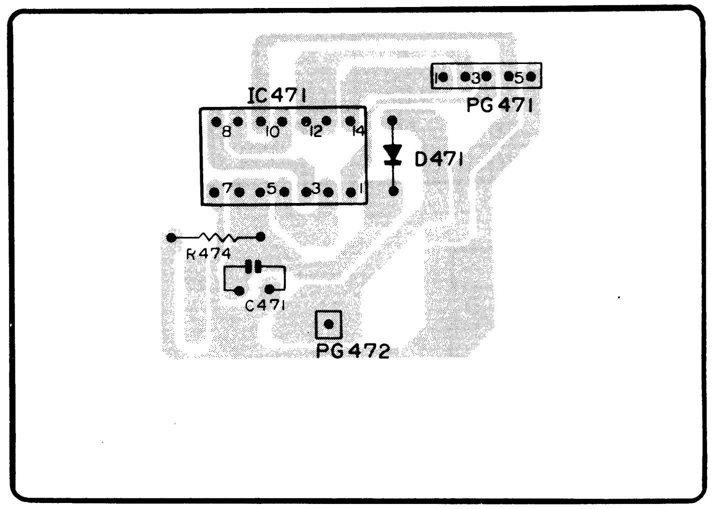
8	9	10	11	12	13	14
(5.0)	(5.0)	(0)	(0)	(5.0)	(5.0)	(5.0)
7	6	5	4	3	2	1
(0)	(0)	(0)	(4.2)	(0)	(5.0)	(5.0)

S1


PG471
1 5V
2 C2
3 C3
4 C2
5 GND
IC471
uPD4011BP
VDD
Vss
D471
1S2473
PG472
1 SELECT
R471 2.2 M
C471 0.033 M
S1 P.C.B

To V.S TUNING CN 726

To TIMER / INPUT KEY CN 104


IC471
PG471
D471
R474
C471
PG472

PG471

1	5V
2	C2
3	C3
4	$\overline{\text{C2}}$
5	GND

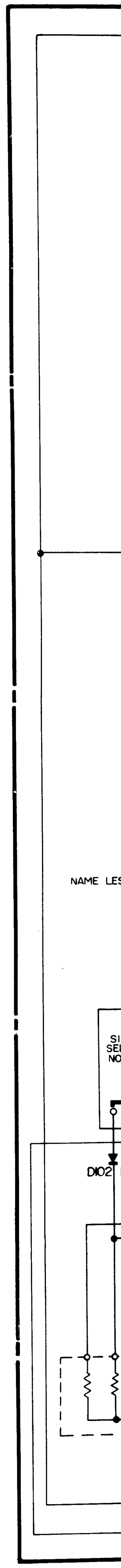
To V.S TUNING CN726

PG472

1	SELECT

To TIMER/ INPUT KEY CN 104

S1 P.C.B



ts of

TUNING
725

To
V.S TUNING
CN723

To
V.S TUNING
CN722

To
V.S TUNING
CN721

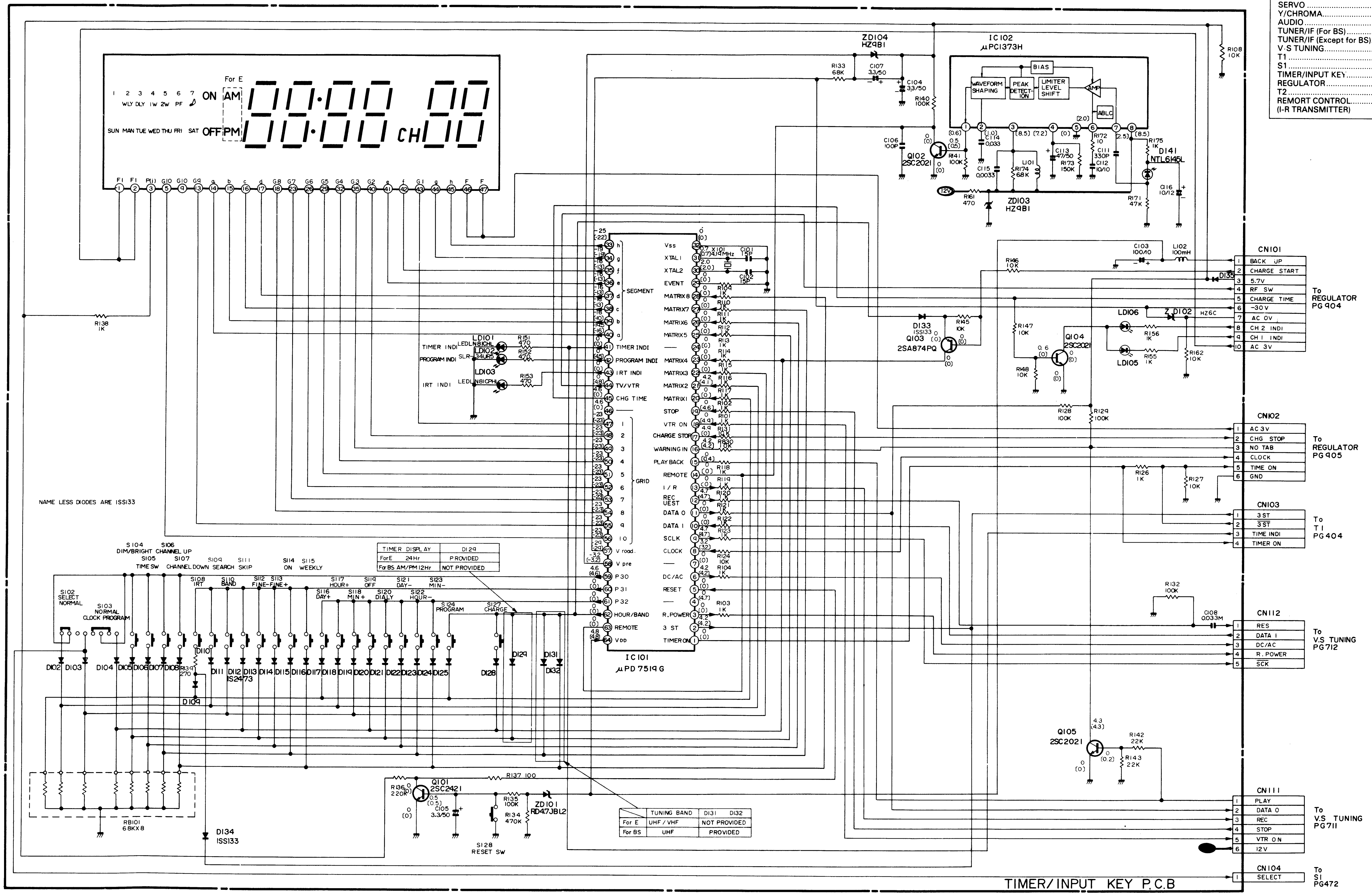
To
IMER
INPU KEY
N103

Q405

B	(0)
C	(0)
E	(0)

TIMER/INPUT KEY

SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58
JACK	66
RF CONVERTER	69
REEL MOTOR	71
CAPSTAN MOTOR	72
SWITCHING REGULATOR	73
SERVO	77
Y/CHROMA	87
AUDIO	94
TUNER/IF (For BS)	98
TUNER/IF (Except for BS)	103
V·S TUNING	108
T1	114
S1	114
TIMER/INPUT KEY	116
REGULATOR	122
T2	129
REMORT CONTROL (I-R TRANSMITTER)	130

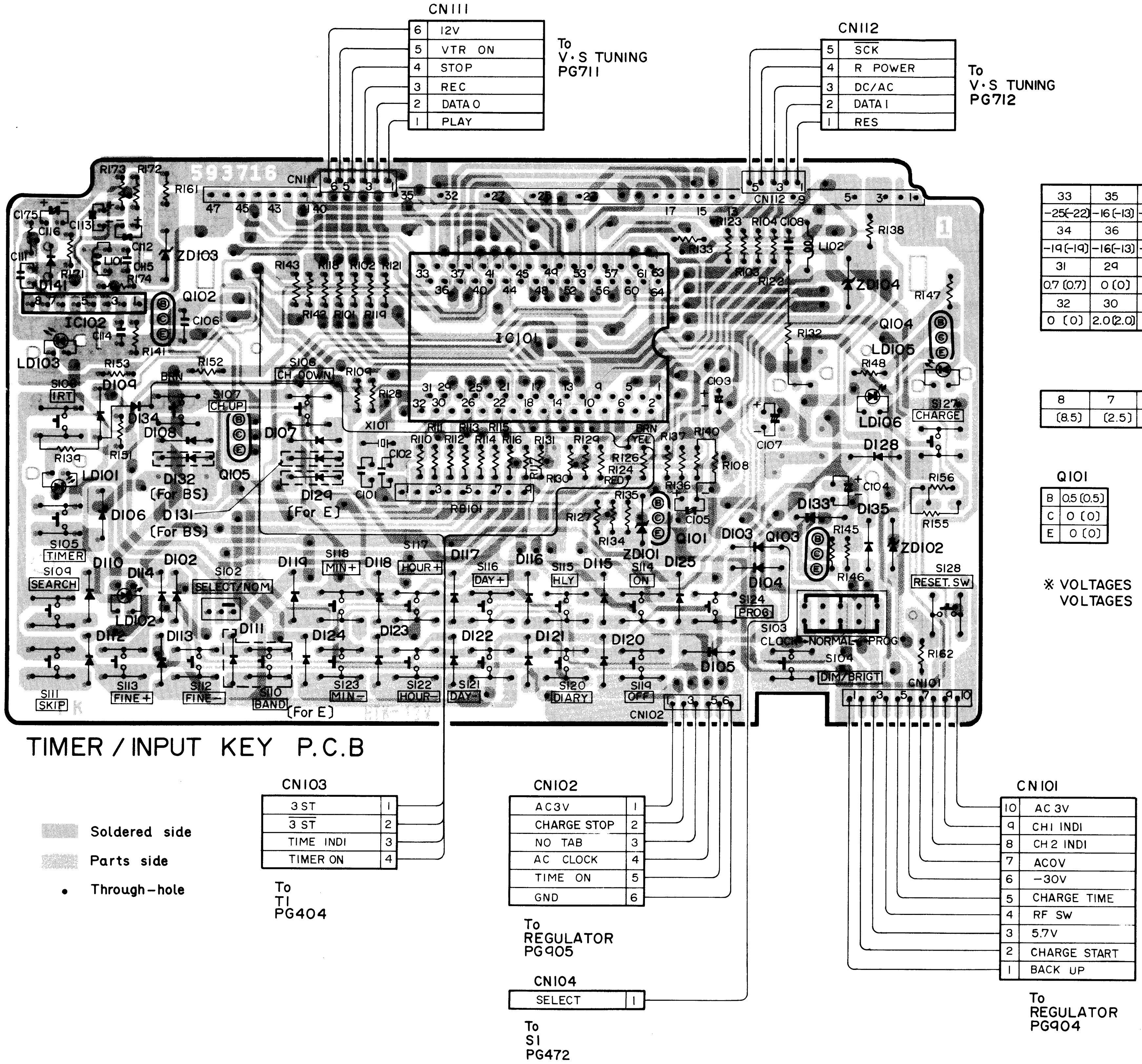

IC102
μPC1373H
WAVEFORM SHAPING
PEAK DETECT-ION
LIMITER LEVEL SHIFT
BIAS
AMP
ABLC
ZD104 HZ9B1
ZD103 HZ9B1
D141 NTL6145L
Q102 2SC2021
Q103 2SA874PQ
Q104 2SC2021
Q105 2SC2021
Q101 2SC2421
ZD101 RD4.7JBL2
D133 1SS133
D134 1SS133
ZD102 HZ6C
D135
LD101 LEDLN81CHL
LD102 SLR-34UR5
LD103 LEDLN81CPHL
LD105
LD106
TIMER INDI
PROGRAM INDI
IRT INDI
L101
L102 100mH
X101 4.19MHz
For E
ON AM
OFF PM
SUN MON TUE WED THU FRI SAT
WLY DLY 1W 2W PF
CH
SEGMENT
GRID
Vss
XTAL1
XTAL2
EVENT
MATRIX8
MATRIX7
MATRIX6
MATRIX5
MATRIX4
MATRIX3
MATRIX2
MATRIX1
STOP
VTR ON
CHARGE STOP
WARNING IN
PLAY BACK
REMOTE
I/R
REC UEST
DATA 0
DATA 1
SCLK
CLOCK
DC/AC
RESET
R.POWER
3 ST
TIMER ON
TV/VTR
CHG TIME
V rood.
V pre
P30
P31
P32
HOUR/BAND
REMOTE
VDD
IC101
μPD 7519G
NAME LESS DIODES ARE 1SS133
S102 SELECT NORMAL
S103 NORMAL CLOCK PROGRAM
S104 DIM/BRIGHT
S105 TIME SW
S106 CHANNEL UP
S107 CHANNEL DOWN
S108 IRT
S109 SEARCH
S110 BAND
S111 SKIP
S112 FINE-
S113 FINE+
S114 ON
S115 WEEKLY
S116 DAY+
S117 HOUR+
S118 MIN+
S119 OFF
S120 DIALY
S121 DAY-
S122 HOUR-
S123 MIN-
S124 PROGRAM
S127 CHARGE
S128 RESET SW
RB101 68KX8
1S2473
CN101
1 BACK UP
2 CHARGE START
3 5.7V
4 RF SW
5 CHARGE TIME
6 -30V
7 AC 0V
8 CH 2 INDI
9 CH 1 INDI
10 AC 3V
To REGULATOR PG904
CN102
1 AC 3V
2 CHG STOP
3 NO TAB
4 CLOCK
5 TIME ON
6 GND
To REGULATOR PG905
CN103
1 3 ST
2 3 ST
3 TIME INDI
4 TIMER ON
To T1 PG404
CN112
1 RES
2 DATA 1
3 DC/AC
4 R. POWER
5 SCK
To V.S TUNING PG712
CN111
1 PLAY
2 DATA 0
3 REC
4 STOP
5 VTR ON
6 12V
To V.S TUNING PG711
CN104
1 SELECT
To S1 PG472
12V
TIMER/ INPUT KEY P.C.B

TIMER DISPLAY	D129
For E 24Hr	PROVIDED
For BS AM/PM 12Hr	NOT PROVIDED

	TUNING BAND	D131 D132
For E	UHF / VHF	NOT PROVIDED
For BS	UHF	PROVIDED

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.

8 9 10 11 12 13 14 15


CN111
6 12V
5 VTR ON
4 STOP
3 REC
2 DATA 0
1 PLAY
To V·S TUNING PG711
CN112
5 SCK
4 R POWER
3 DC/AC
2 DATA 1
1 RES
To V·S TUNING PG712
593716
IC101
IC102
X101
RB101
S101 IRT
S102 SELECT/NOM
S103 CLOCK-NORMAL-PROG
S104 DIM/BRIGT
S105 TIMER
S106 CH DOWN
S107 CH UP
S109 SEARCH
S110 BAND
S111 SKIP
S112 FINE−
S113 FINE+
S114 ON
S115 HLY
S116 DAY+
S117 HOUR+
S118 MIN+
S119 OFF
S120 DIARY
S121 DAY−
S122 HOUR−
S123 MIN−
S124 PROG
S127 CHARGE
S128 RESET SW
D132 (For BS)
D131 (For BS)
D129 (For E)
D111 (For E)
CN103
3 ST 1
3 ST 2
TIME INDI 3
TIMER ON 4
To T1 PG404
CN102
AC3V 1
CHARGE STOP 2
NO TAB 3
AC CLOCK 4
TIME ON 5
GND 6
To REGULATOR PG905
CN104
SELECT 1
To S1 PG472
CN101
10 AC 3V
9 CH1 INDI
8 CH2 INDI
7 ACOV
6 −30V
5 CHARGE TIME
4 RF SW
3 5.7V
2 CHARGE START
1 BACK UP
To REGULATOR PG904

TIMER / INPUT KEY P.C.B

▒	Soldered side
░	Parts side
•	Through-hole

IC101

33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63
−25(−22)	−16 (−13)	−16 (−13)	−16(−10)	0 (0)	0 (0)	4.6 (0)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−29(−29)	4.6(4.6)	0 (0)	0 (0)
34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64
−19 (−19)	−16(−13)	−16 (−10)	−19.5(−16)	0 (4.5)	0 (4.8)	4.6(0)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−3.2(−3.2)	0 (0)	0 (0)	4.8 (4.8)
31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1
0.7 (0.7)	0 (0)	0 (0)	0 (0)	0 (0)	4.2 (4.1)	0 (4.6)	4.6(0)	0 (0.4)	0 (0)	0 (0)	4.7 (4.7)	0 (0)	0 (0)	0 (0)	0 (0)
32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
0 (0)	2.0(2.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (4.9)	4.2(4.2)	0 (0)	4.7(4.7)	0 (0)	3.2 (3.2)	4.2(4.2)	0 (4.7)	4.2 (4.2)

IC102

8	7	6	5	4	3	2	1
(8.5)	(2.5)	(2.0)	(0)	(7.2)	(8.5)	(1.0)	(0.6)

Q101

B	0.5 (0.5)
C	0 (0)
E	0 (0)

Q102

B	0.5(0.5)
C	0 (0)
E	0 (0)

Q103

B	0 (0)
C	0 (0)
E	0 (0)

Q104

B	0.6(0)
C	0 (0)
E	0 (0)

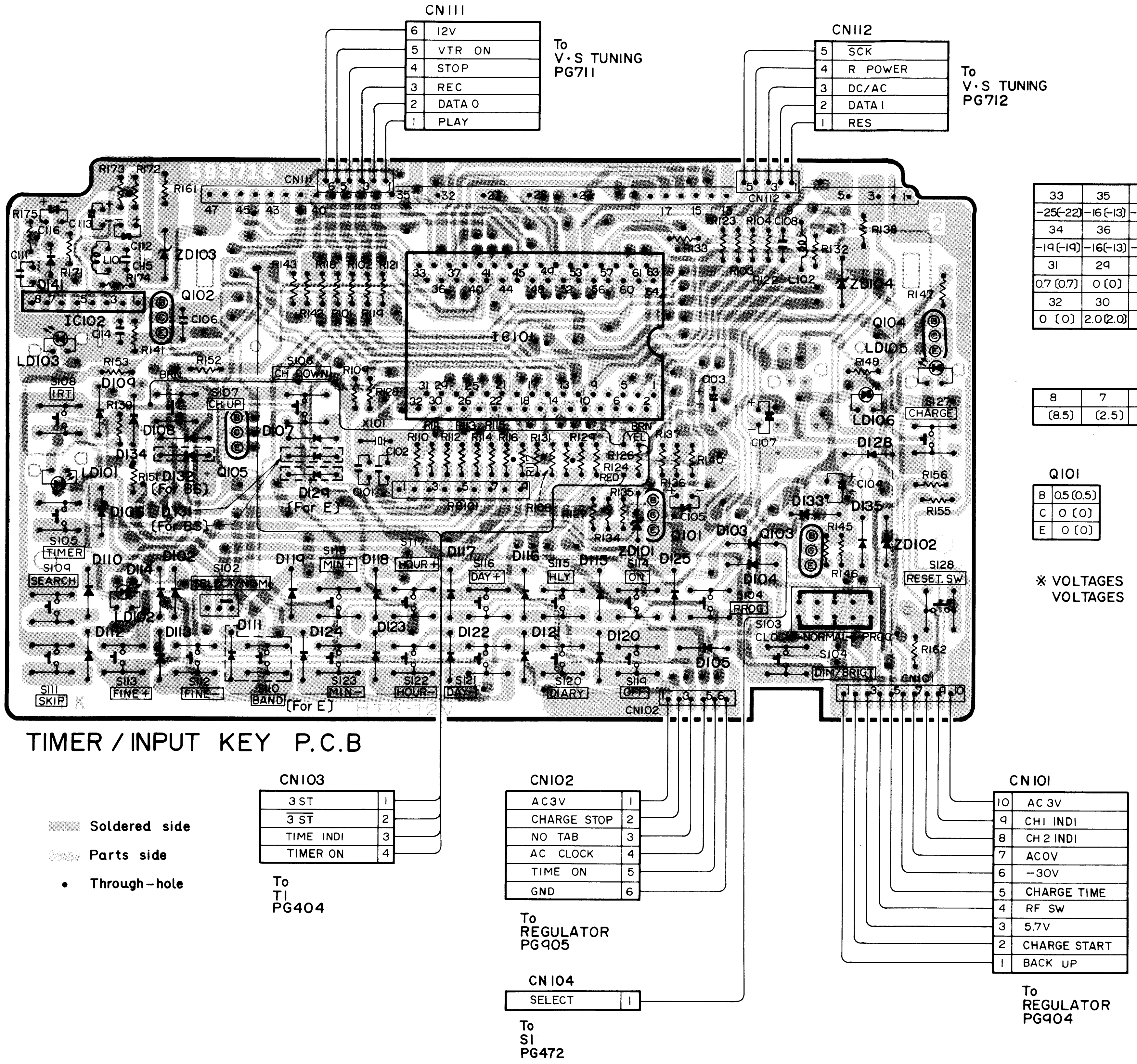
Q105

B	0 (0.2)
C	4.3(4.3)
E	0 (0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

61	63
(0)	0 (0)
2	64
(0)	4.8 (4.8)
3	1
(0)	0 (0)
4	2
(4.7)	4.2 (4.2)

* This circuit board diagram is described for the units of the serial No. 00025001 and later modified.


CN111
6 12V
5 VTR ON
4 STOP
3 REC
2 DATA 0
1 PLAY
To V·S TUNING PG711
CN112
5 SCK
4 R POWER
3 DC/AC
2 DATA 1
1 RES
To V·S TUNING PG712
IC101
IC102
Q101
Q102
Q103
Q104
Q105
S106 CH DOWN
S107 CH UP
S108 IRT
S105 TIMER
S109 SEARCH
S102 SELECT/NOM
S118 MIN+
S117 HOUR+
S116 DAY+
S115 HLY
S114 ON
S104 PROG
S103 CLOCK
NORMAL PROG
S104 DIM/BRIGT
S127 CHARGE
S128 RESET SW
S111 SKIP
S113 FINE+
S112 FINE−
S110 BAND
(For E)
S123 MIN−
S122 HOUR−
S121 DAY−
S120 DIARY
S119 OFF
(For BS)
D129 (For E)
CN102
CN101
CN103
3 ST 1
3 ST 2
TIME INDI 3
TIMER ON 4
To T1 PG404
CN102
AC3V 1
CHARGE STOP 2
NO TAB 3
AC CLOCK 4
TIME ON 5
GND 6
To REGULATOR PG905
CN104
SELECT 1
To S1 PG472
CN101
10 AC 3V
9 CH1 INDI
8 CH 2 INDI
7 ACOV
6 −30V
5 CHARGE TIME
4 RF SW
3 5.7V
2 CHARGE START
1 BACK UP
To REGULATOR PG904
Soldered side
Parts side
• Through-hole

TIMER / INPUT KEY P.C.B

IC101

33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63
−25(−22)	−16 (−13)	−16 (−13)	−16(−10)	0 (0)	0 (0)	4.6 (0)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−29(−29)	4.6(4.6)	0 (0)	0 (0)
34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64
−19 (−19)	−16(−13)	−16 (−10)	−19.5(−16)	0 (4.5)	0 (4.8)	4.6(0)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−23(−23)	−3.2(−3.2)	0 (0)	0 (0)	4.8 (4.8)
31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1
0.7 (0.7)	0 (0)	0 (0)	0 (0)	0 (0)	4.2 (4.1)	0 (4.6)	4.6(0)	0 (0.4)	0 (0)	0 (0)	4.7 (4.7)	0 (0)	0 (0)	0 (0)	0 (0)
32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
0 (0)	2.0(2.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (4.9)	4.2(4.2)	0 (0)	4.7(4.7)	0 (0)	3.2 (3.2)	4.2(4.2)	0 (4.7)	4.2 (4.2)

IC102

8	7	6	5	4	3	2	1
(8.5)	(2.5)	(2.0)	(0)	(7.2)	(8.5)	(1.0)	(0.6)

Q101

B	0.5 (0.5)
C	0 (0)
E	0 (0)

Q102

B	0.5 (0.5)
C	0 (0)
E	0 (0)

Q103

B	0 (0)
C	0 (0)
E	0 (0)

Q104

B	0.6 (0)
C	0 (0)
E	0 (0)

Q105

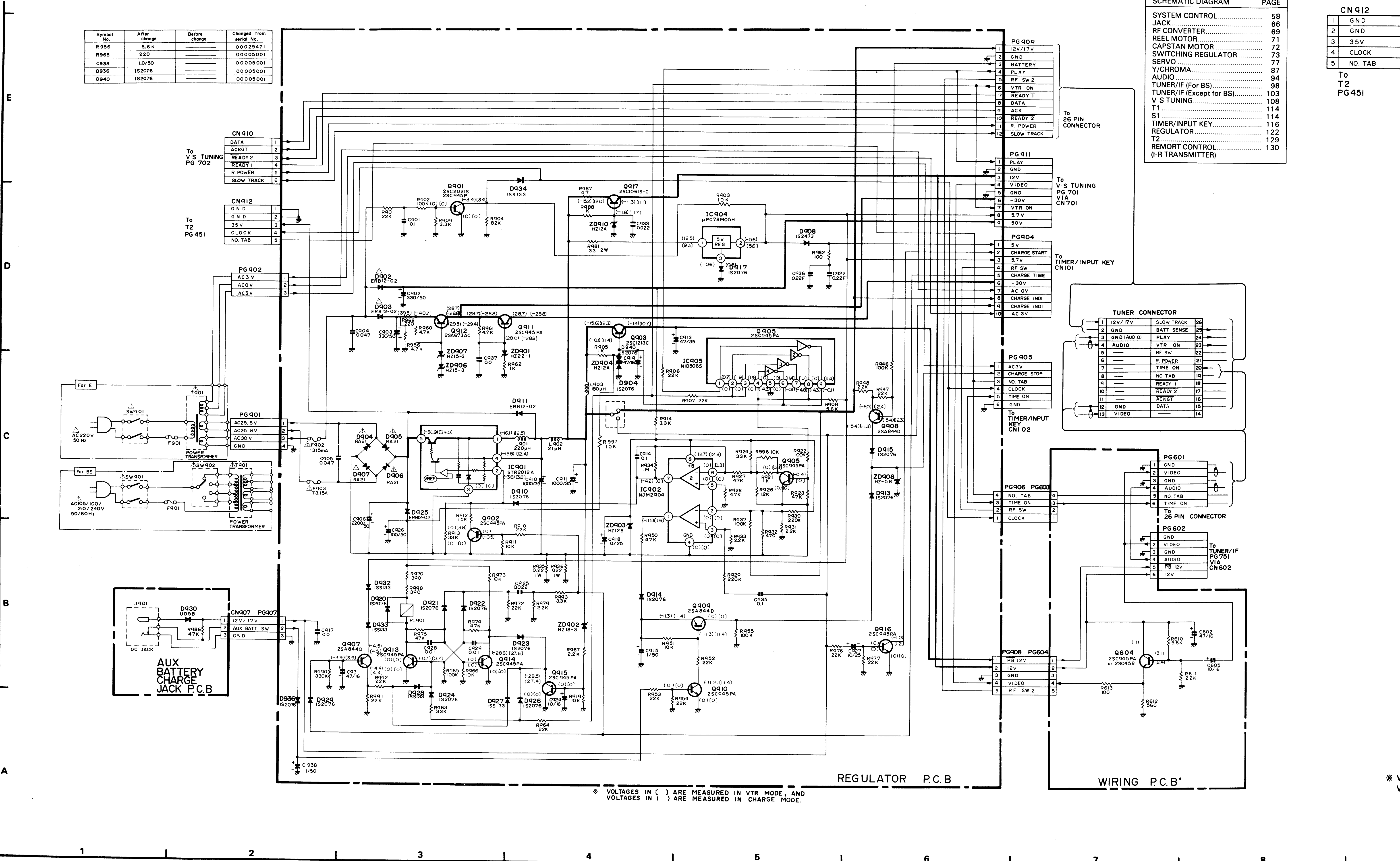
B	0 (0.2)
C	4.3 (4.3)
E	0 (0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

REGULATOR

Symbol No.	After change	Before change	Changed from serial No.
R956	5,6K	———	00029471
R968	220	———	00005001
C938	1,0/50	———	00005001
D936	IS2076	———	00005001
D940	IS2076	———	00005001

SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58
JACK	66
RF CONVERTER	69
REEL MOTOR	71
CAPSTAN MOTOR	72
SWITCHING REGULATOR	73
SERVO	77
Y/CHROMA	87
AUDIO	94
TUNER/IF (For BS)	98
TUNER/IF (Except for BS)	103
V·S TUNING	108
T1	114
S1	114
TIMER/INPUT KEY	116
REGULATOR	122
T2	129
REMORT CONTROL (I-R TRANSMITTER)	130



CN912
1 GND
2 GND
3 35V
4 CLOCK
5 NO. TAB
To T2 PG451
E
D
C
B
A
1
2
3
4
5
6
7
8
CN910
DATA
ACKGT
READY 2
READY 1
R. POWER
SLOW TRACK
To V·S TUNING PG 702
CN912
GND
GND
35V
CLOCK
NO. TAB
To T2 PG451
PG902
AC3V
AC0V
AC3V
PG901
AC25.8V
AC25.8V
AC30V
GND
For E
For BS
SW901
SW902
T901
F901
F902 T315mA
F903 T3.15A
AC220V 50Hz
AC105/100/210/240V 50/60Hz
POWER TRANSFORMER
PG909
12V/17V
GND
BATTERY
PLAY
RF SW 2
VTR ON
READY 1
DATA
ACK
READY 2
R. POWER
SLOW TRACK
To 26 PIN CONNECTOR
PG911
PLAY
GND
12V
VIDEO
GND
-30V
VTR ON
5.7V
50V
To V·S TUNING PG 701 VIA CN701
PG904
5V
CHARGE START
5.7V
RF SW
CHARGE TIME
-30V
AC 0V
CHARGE INDI
CHARGE INDI
AC 3V
To TIMER/INPUT KEY CN101
PG905
AC3V
CHARGE STOP
NO. TAB
CLOCK
TIME ON
GND
To TIMER/INPUT KEY CN102
TUNER CONNECTOR
12V/17V
GND
GND (AUDIO)
AUDIO
GND
VIDEO
SLOW TRACK
BATT SENSE
PLAY
VTR ON
RF SW
R. POWER
TIME ON
NO TAB
READY 1
READY 2
ACKGT
DATA
PG906 PG603
NO. TAB
TIME ON
RF SW
CLOCK
PG601
GND
VIDEO
GND
AUDIO
NO TAB
TIME ON
To 26 PIN CONNECTOR
PG602
GND
VIDEO
GND
AUDIO
PB 12V
12V
To TUNER/IF PG751 VIA CN602
PG908 PG604
PB 12V
12V
GND
VIDEO
RF SW 2
Q604 2SC945PA or 2SC458
R610 5.6K
R611 2.2K
R612 560
R613 100
C602 47/16
C605 10/16
Q901 2SC2021S 2SC945P
D934 1SS133
Q917 2SC1061S-C
ZD910 HZ12A
IC904 μPC78M05H 5V REG
D908 1S2473
D917 1S2076
D902 ERB12-02
D903 ERB12-02
Q912 2SA673AC
Q911 2SC945PA
ZD907 HZ15-3
ZD906 HZ15-3
ZD901 HZ22-1
Q903 2SC1213C
D940 1S2076
ZD904 HZ12A
D904 1S2076
L903 180μH
Q905 2SC945PA
IC905 NID506S
Q908 2SA844D
D911 ERB12-02
D904 RA21
D905 RA21
D907 RA21
D906 RA21
IC901 STR2012A
L901 220μH
L902 21μH
D910 1S2076
D925 ERB12-02
Q902 2SC945PA
IC902 NJM2904
Q906 2SC945PA
ZD903 HZ12B
D915 1S2076
ZD908 HZ-5B
D913 1S2076
D932 1SS133
D920 1S2076
D933 1SS133
RL901
D921 1S2076
D922 1S2076
D914 1S2076
Q909 2SA844D
Q910 2SC945PA
Q916 2SC945PA
ZD902 HZ18-3
Q907 2SA844D
Q913 2SC945PA
D928 1SS133
D924 1S2076
Q914 2SC945PA
D923 1S2076
D927 1SS133
D926 1S2076
Q915 2SC945PA
D936 1S2076
D929 1S2076
C938 1/50
J901
D930 U05B
R986 47K
CN907 PG907
12V/17V
AUX BATT SW
GND
DC JACK
AUX BATTERY CHARGE JACK P.C.B
REGULATOR P.C.B
WIRING P.C.B*

※ VOLTAGES IN ( ) ARE MEASURED IN VTR MODE, AND VOLTAGES IN ( ) ARE MEASURED IN CHARGE MODE.

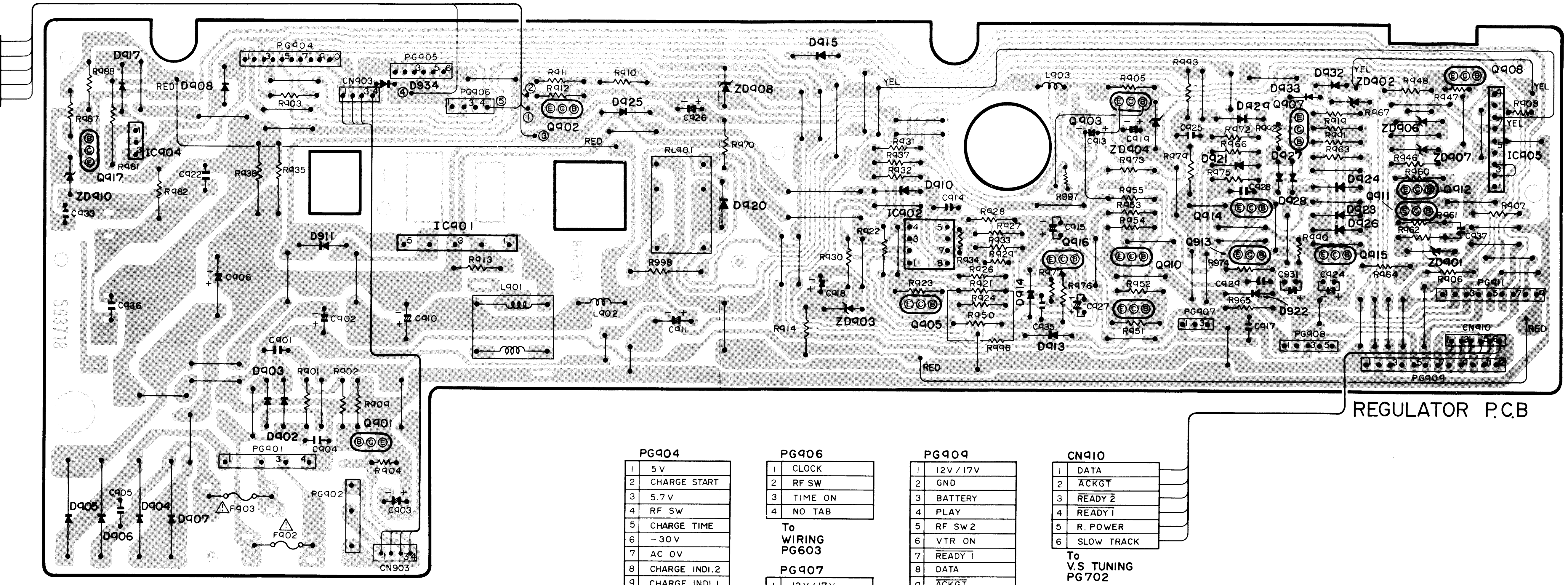
※ V
V

PAGE
.... 58
.... 66
.... 69
.... 71
.... 72
OR 73
.... 77
.... 87
.... 94
.... 98
S)............ 103
.... 108
.... 114
.... 114
.... 116
.... 122
.... 129
.... 130

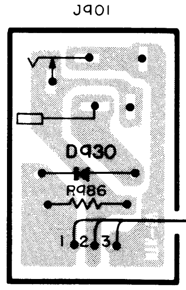
CN912

1	GND
2	GND
3	35V
4	CLOCK
5	NO. TAB

To
T2
PG451


PG904
PG905
PG906
CN903
D917
R988
D908
RED
D934
R903
R911
R912
R910
D925
C926
ZD908
D915
YEL
L903
R905
R993
D932
ZD902
R948
Q908
YEL
R908
R947
R987
Q917
IC904
R981
ZD910
C933
R982
C922
R936
R935
Q902
RED
R970
RL901
R931
R937
R932
D910
C914
Q903
C913
C919
ZD904
R973
R974
C925
R972
R966
D929
Q907
R919
R941
R963
R967
ZD906
IC905
R946
ZD907
R960
D924
Q911
Q912
R961
R907
D920
IC902
R928
R927
R933
R929
R922
C915
Q916
R997
R955
R953
R954
Q914
D921
R975
C928
D927
D928
D923
D926
R962
C937
ZD901
R906
PG911
D911
IC901
R913
C906
C936
L901
L902
C911
C902
C910
R998
R930
C918
ZD903
R914
R934
R923
Q905
R921
R926
R924
R950
R996
D914
R971
R976
C927
C935
D913
Q910
R952
R951
Q913
R974
C929
C931
R965
D922
C917
C924
Q915
R964
R990
PG907
PG908
PG909
CN910
RED
C901
D903
R901
R902
R909
Q901
D902
C904
PG901
R904
PG902
C903
C905
D905
D906
D904
D907
F903
F902
CN903
RED
593718

REGULATOR P.C.B

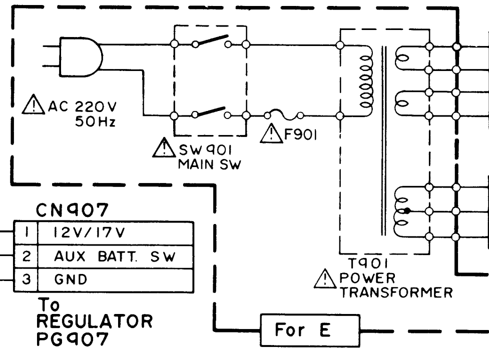

J901
D930
R986
1 2 3

AUX BATTERY
CHARGE JACK
P.C.B

CN907

1	12V/17V
2	AUX BATT. SW
3	GND

To
REGULATOR
PG907

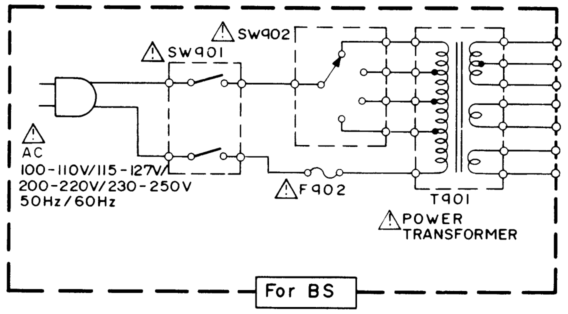

AC 220V
50Hz
SW901
MAIN SW
F901
T901
POWER
TRANSFORMER
For E

PG901

AC 25.8V	1
AC 25.8V	2
AC 30V	3
GND	4

PG902

AC 3V	1
AC 0V	2
AC 3V	3


SW902
SW901
AC
100-110V/115-127V/
200-220V/230-250V
50Hz/60Hz
F902
T901
POWER
TRANSFORMER
For BS

PG904

1	5V
2	CHARGE START
3	5.7V
4	RF SW
5	CHARGE TIME
6	−30V
7	AC 0V
8	CHARGE INDI.2
9	CHARGE INDI.1
10	AC 3V

To
TIMER/INPUT KEY
CN101

PG905

1	AC 3V
2	CHARGE STOP
3	NO TAB
4	AC CLOCK
5	TIME ON
6	GND

To
TIMER/INPUT KEY
CN102

PG906

1	CLOCK
2	RF SW
3	TIME ON
4	NO TAB

To
WIRING
PG603

PG907

1	12V/17V
2	AUX BATT. SW
3	GND

To
BATTERY CHARGE
JACK
CN907

PG908

1	$\overline{\text{PB}}$ 12V
2	12V
3	GND
4	VIDEO
5	RF SW 2

To
WIRING
PG604

PG909

1	12V/17V
2	GND
3	BATTERY
4	PLAY
5	RF SW2
6	VTR ON
7	$\overline{\text{READY 1}}$
8	DATA
9	$\overline{\text{ACKGT}}$
10	$\overline{\text{READY 2}}$
11	R. POWER
12	SLOW TRACK

To
26 PIN
CONNECTOR

CN910

1	DATA
2	$\overline{\text{ACKGT}}$
3	$\overline{\text{READY 2}}$
4	$\overline{\text{READY 1}}$
5	R. POWER
6	SLOW TRACK

To
V.S TUNING
PG702

PG911

1	PLAY
2	GND
3	12V
4	VIDEO
5	GND
6	-30V
7	VTR. ON
8	5.7V
9	50V

To
V.S TUNING
PG701

Q901

B	(0) 〔0〕
C	(-3.4)〔3.4〕
E	(0) 〔0〕

Q902

B	(-0.5)〔0〕
C	(0) 〔3.8〕
E	(0) 〔0〕

Q903

B	(-0.1)〔11.4〕
C	(-15.6)〔12.3〕
E	(-1.4)〔10.7〕

Q905

B	(-0.4)〔0〕
C	(0) 〔0.3〕
E	(0) 〔0〕

Q907

B	(-3.9)〔3.9〕
C	(-4.4)〔4.4〕
E	(-4.5)〔4.5〕

Q908

B	(-5.4)〔12.3〕
C	(-5.4)〔-1.3〕
E	(-6.0)〔12.4〕

Q909

B	(-11.3)〔11.4〕
C	(0) 〔0〕
E	(-11.3)〔11.4〕

Q910

B	(0) 〔0〕
C	(-11.2)〔11.4〕
E	(0) 〔0〕

Q911

B	(28.0)〔-28.8〕
C	(28.7)〔-28.8〕
E	(28.7)〔-28.8〕

Q912

B	(29.3)〔-29.4〕
C	(39.5)〔-40.7〕
E	(28.7)〔-28.8〕

Q913

B	(-0.7)〔0.7〕
C	(0) 〔0〕
E	(0) 〔0〕

Q914

B	(0) 〔0〕
C	(-28.8)〔27.6〕
E	(0) 〔0〕

Q915

B	(0) 〔0〕
C	(-28.5)〔27.4〕
E	(0) 〔0〕

Q916

B	(0) 〔0〕
C	(-1.0)〔1.2〕
E	(0) 〔0〕

Q917

B	(-11.8)〔11.7〕
C	(-15.2)〔12.0〕
E	(-11.3)〔11.1〕

IC901

5	4	3	2	1
(-30.9)〔34.0〕	(-15.8)〔12.4〕	(0) 〔0〕	(-3.6)〔3.8〕	(-16.1)〔12.5〕

IC902

4	(0) 〔0〕	5	(0) 〔0〕
3	(0) 〔0〕	6	(0) 〔0.3〕
2	(0) 〔0〕	7	(-4.2)〔0〕
1	(-11.5)〔11.6〕	8	(-12.7)〔12.8〕

IC904

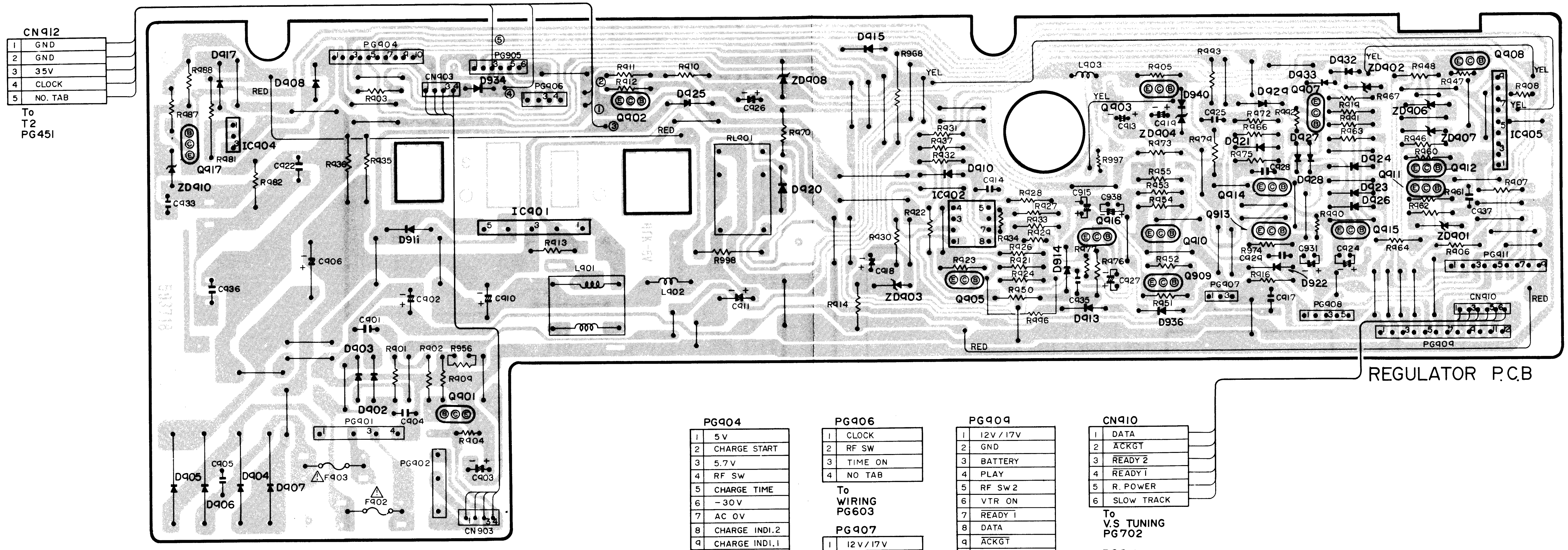
1	(12.5)〔9.3〕
2	(-5.6)〔5.6〕
3	(-0.6)〔0.6〕

IC905

9	(-0.1)〔11.4〕
8	(-4.3)〔0〕
7	(-4.8)〔0〕
6	(-0.1)〔11.4〕
5	(0) 〔0〕
4	(-4.3)〔0〕
3	(0) 〔1.9〕
2	(0) 〔1.9〕
1	(0) 〔0.7〕

※ VOLTAGES IN〔 〕ARE MEASURED IN VTR MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN CHARGE MODE

* This circuit board diagram is described for the units of the serial No. 00005001 and later modified.


CN912
1 GND
2 GND
3 35V
4 CLOCK
5 NO. TAB
To
T2
PG451
D917
R988
R987
Q917
R981
IC904
ZD910
C933
R982
C922
RED
D908
PG904
R903
R936
R935
CN903
PG905
D934
PG906
R911
R912
R910
Q902
D925
C926
ZD908
RED
RL901
R970
D920
IC901
D911
R913
R998
C906
C936
C902
C910
L901
L902
C911
R914
C901
D903
R901
R902
R956
R909
Q901
D902
C904
PG901
R904
PG902
C903
F903
F902
D905
C905
D904
D907
D906
CN903
D915
R968
YEL
L903
R905
Q903
C913
C919
D940
ZD904
R931
R937
R932
D910
C914
R997
IC902
R922
R930
C918
ZD903
R928
R927
R933
R929
R934
R926
R921
R924
R923
Q905
R950
R996
D914
C915
C938
Q916
R977
R976
C927
C935
D913
R973
R955
R953
R954
Q910
R952
Q909
R951
D936
R993
C925
R979
D929
R972
R966
D921
R975
C928
Q914
Q913
R974
C929
R916
PG907
C917
D922
C931
D932
D933
Q907
R992
D927
D928
R919
R991
R963
R967
ZD902
R948
R947
Q908
R908
YEL
ZD906
ZD907
IC905
R946
R960
D924
Q911
Q912
D923
D926
R961
R962
R907
C937
R990
Q915
C924
R964
ZD901
R906
PG911
PG908
CN910
PG909
RED
REGULATOR P.C.B

PG904

1	5V
2	CHARGE START
3	5.7V
4	RF SW
5	CHARGE TIME
6	−30V
7	AC 0V
8	CHARGE INDI.2
9	CHARGE INDI.1
10	AC 3V

To
TIMER/INPUT KEY
CN101

PG905

1	AC 3V
2	CHARGE STOP
3	NO TAB
4	AC CLOCK
5	TIME ON
6	GND

To
TIMER/INPUT KEY
CN102

PG906

1	CLOCK
2	RF SW
3	TIME ON
4	NO TAB

To
WIRING
PG603

PG907

1	12V/17V
2	AUX BATT. SW
3	GND

To
BATTERY CHARGE
JACK
CN907

PG908

1	$\overline{\text{PB}}$ 12V
2	12V
3	GND
4	VIDEO
5	RF SW2

To
WIRING
PG604

PG909

1	12V/17V
2	GND
3	BATTERY
4	PLAY
5	RF SW2
6	VTR ON
7	$\overline{\text{READY 1}}$
8	DATA
9	$\overline{\text{ACKGT}}$
10	$\overline{\text{READY 2}}$
11	R. POWER
12	SLOW TRACK

To
26 PIN
CONNECTOR

CN910

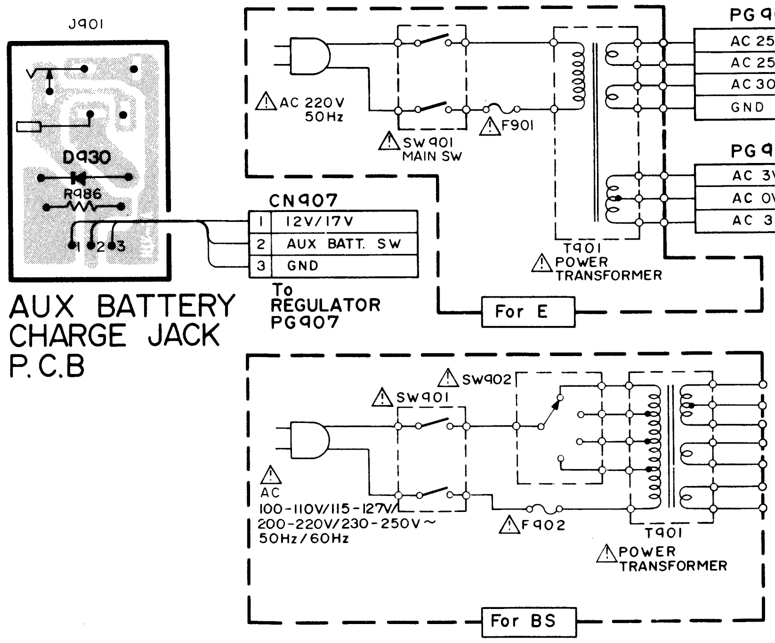
1	DATA
2	$\overline{\text{ACKGT}}$
3	$\overline{\text{READY 2}}$
4	$\overline{\text{READY 1}}$
5	R. POWER
6	SLOW TRACK

To
V.S TUNING
PG702

PG911

1	PLAY
2	GND
3	12V
4	VIDEO
5	GND
6	-30V
7	VTR. ON
8	5.7V
9	50V

To
V.S TUNING
PG701


J901
D930
R986
1 2 3
AC 220V
50Hz
SW901
MAIN SW
F901
T901
POWER
TRANSFORMER
For E
SW901
SW902
AC
100-110V/115-127V/
200-220V/230-250V~
50Hz/60Hz
F902
T901
POWER
TRANSFORMER
For BS

AUX BATTERY
CHARGE JACK
P.C.B

CN907

1	12V/17V
2	AUX BATT. SW
3	GND

To
REGULATOR
PG907

PG901

AC 25.8V	1
AC 25.8V	2
AC 30V	3
GND	4

PG902

AC 3V	1
AC 0V	2
AC 3V	3

※ VOLTAGES IN [ ] ARE MEASURED IN VTR MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN CHARGE MODE

Q901

B	(0) [0]
C	(-3.4)[3.4]
E	(0) [0]

Q902

B	(-0.5)[0]
C	(0) [3.8]
E	(0) [0]

Q903

B	(-0.1)[11.4]
C	(-15.6)[12.3]
E	(-1.4)[10.7]

Q905

B	(-0.4)[0]
C	(0) [0.3]
E	(0) [0]

Q907

B	(-3.9)[3.9]
C	(-4.4)[4.4]
E	(-4.5)[4.5]

Q908

B	(-5.4)[12.3]
C	(-5.4)[-1.3]
E	(-6.0)[12.4]

Q909

B	(-11.3)[11.4]
C	(0) [0]
E	(-11.3)[11.4]

Q910

B	(0) [0]
C	(-11.2)[11.4]
E	(0) [0]

Q911

B	(28.0)[-28.8]
C	(28.7)[-28.8]
E	(28.7)[-28.8]

Q912

B	(29.3)[-29.4]
C	(39.5)[-40.7]
E	(28.7)[-28.8]

Q913

B	(-0.7)[0.7]
C	(0) [0]
E	(0) [0]

Q914

B	(0) [0]
C	(-28.8)[27.6]
E	(0) [0]

Q915

B	(0) [0]
C	(-28.5)[27.4]
E	(0) [0]

Q916

B	(0) [0]
C	(-1.0)[1.2]
E	(0) [0]

Q917

B	(-11.8)[11.7]
C	(-15.2)[12.0]
E	(-11.3)[11.1]

IC901

5	4	3	2	1
(-30.9)[34.0]	(-15.8)[12.4]	(0) [0]	(-3.6)[3.8]	(-16.1)[12.5]

IC902

4	(0) [0]	5	(0) [0]
3	(0) [0]	6	(0) [0.3]
2	(0) [0]	7	(-4.2)[0]
1	(-11.5)[11.6]	8	(-12.7)[12.8]

IC904

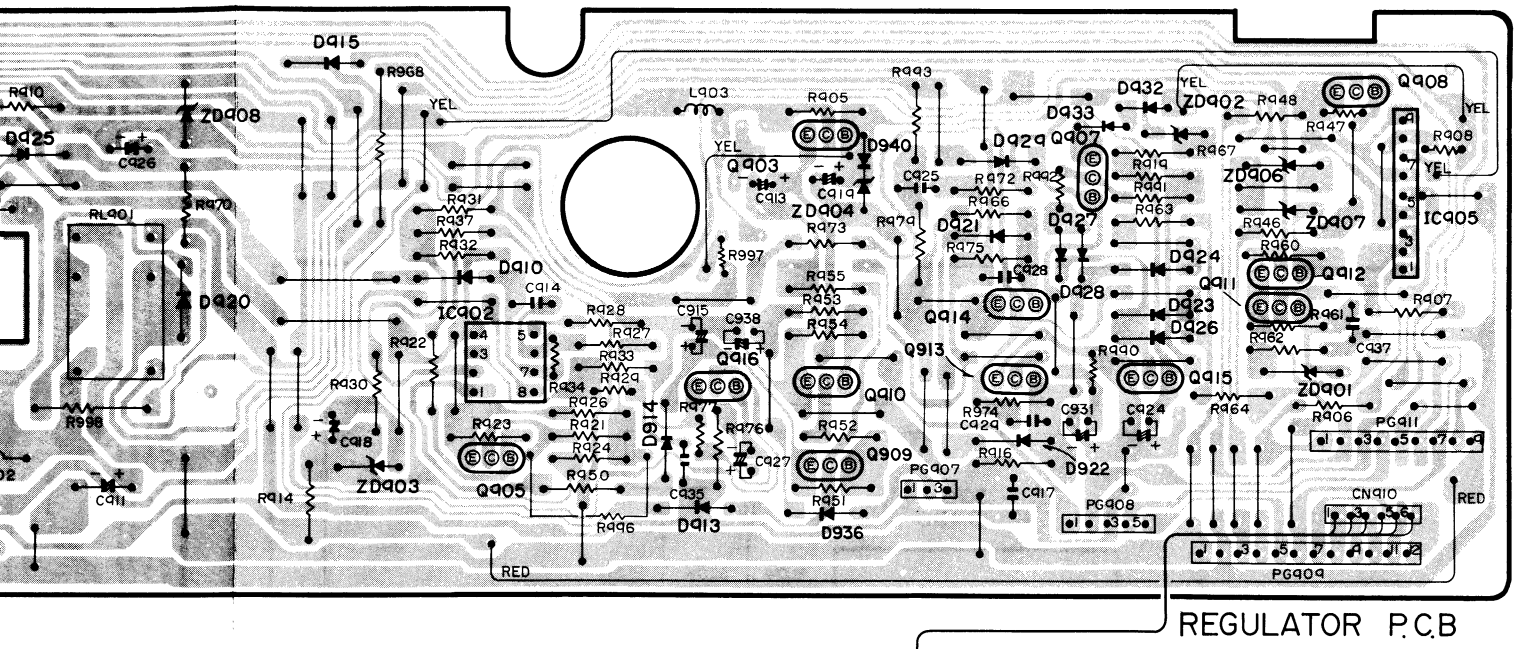
1	(12.5)[9.3]
2	(-5.6)[5.6]
3	(-0.6)[0.6]

IC905

9	(-0.1)[11.4]
8	(-4.3)[0]
7	(-4.8)[0]
6	(-0.1)[11.4]
5	(0) [0]
4	(-4.3)[0]
3	(0) [1.9]
2	(0) [1.9]
1	(0) [0.7]

fied.

WIRING


D915
R968
YEL
R910
D925
ZD908
C926
R970
RL901
D920
R998
C911
R914
ZD903
C918
R930
R922
IC902
C914
D910
R931
R937
R932
L903
R905
YEL
Q903
C913
C919
ZD904
D940
R997
R993
D933
D932
ZD902
R948
Q908
YEL
R947
R908
YEL
IC905
D929
Q907
R972
R992
R966
R919
R967
R941
R963
ZD906
R946
ZD907
R960
D927
C925
R974
D921
R975
R973
C928
D928
D924
Q911
Q912
R407
D923
D926
R961
R962
C937
R455
R453
R454
Q914
Q913
R928
R927
R933
R929
R934
R926
R921
R924
R923
Q905
R950
R996
D914
C915
C938
Q916
R947
R476
C927
C935
D913
Q910
R952
Q909
R451
D936
PG907
R374
C931
C924
C929
R916
C917
D922
PG908
R990
Q915
R964
ZD901
R906
PG911
CN910
PG909
RED
RED

REGULATOR P.C.B

PG904

1	5V
2	CHARGE START
3	5.7V
4	RF SW
5	CHARGE TIME
6	−30V
7	AC 0V
8	CHARGE INDI.2
9	CHARGE INDI.1
10	AC 3V

To
TIMER/INPUT KEY
CN101

PG905

1	AC 3V
2	CHARGE STOP
3	NO TAB
4	AC CLOCK
5	TIME ON
6	GND

To
TIMER/INPUT KEY
CN102

PG906

1	CLOCK
2	RF SW
3	TIME ON
4	NO TAB

To
WIRING
PG603

PG907

1	12V/17V
2	AUX BATT. SW
3	GND

To
BATTERY CHARGE
JACK
CN907

PG908

1	$\overline{\text{PB}}$ 12V
2	12V
3	GND
4	VIDEO
5	RF SW2

To
WIRING
PG604

PG909

1	12V/17V
2	GND
3	BATTERY
4	PLAY
5	RF SW2
6	VTR ON
7	$\overline{\text{READY 1}}$
8	DATA
9	$\overline{\text{ACKGT}}$
10	$\overline{\text{READY 2}}$
11	R. POWER
12	SLOW TRACK

To
26 PIN
CONNECTOR

CN910

1	DATA
2	$\overline{\text{ACKGT}}$
3	$\overline{\text{READY 2}}$
4	$\overline{\text{READY 1}}$
5	R. POWER
6	SLOW TRACK

To
V.S TUNING
PG702

PG911

1	PLAY
2	GND
3	12V
4	VIDEO
5	GND
6	-30V
7	VTR. ON
8	5.7V
9	50V

To
V.S TUNING
PG701

(0)
(3.4)
(0)

(3.9)
(4.4)
(4.5)

(-28.8)
(-28.8)
(-28.8)

(0)
(27.4)
(0)

Q902

B	(-0.5)(0)
C	(0) (3.8)
E	(0) (0)

Q903

B	(-0.1)(11.4)
C	(-15.6)(12.3)
E	(-1.4)(10.7)

Q905

B	(-0.4)(0)
C	(0) (0.3)
E	(0) (0)

Q908

B	(-5.4)(12.3)
C	(-5.4)(-1.3)
E	(-6.0)(12.4)

Q909

B	(-11.3)(11.4)
C	(0) (0)
E	(-11.3)(11.4)

Q910

B	(0) (0)
C	(-11.2)(11.4)
E	(0) (0)

Q912

B	(29.3)(-29.4)
C	(39.5)(-40.7)
E	(28.7)(-28.8)

Q913

B	(-0.7)(0.7)
C	(0) (0)
E	(0) (0)

Q914

B	(0) (0)
C	(-28.8)(27.6)
E	(0) (0)

Q916

B	(0) (0)
C	(-1.0)(1.2)
E	(0) (0)

Q917

B	(-11.8)(11.7)
C	(-15.2)(12.0)
E	(-11.3)(11.1)

IC901

5	4	3	2	1
(-30.9)(34.0)	(-15.8)(12.4)	(0) (0)	(-3.6)(3.8)	(-16.1)(12.5)

IC902

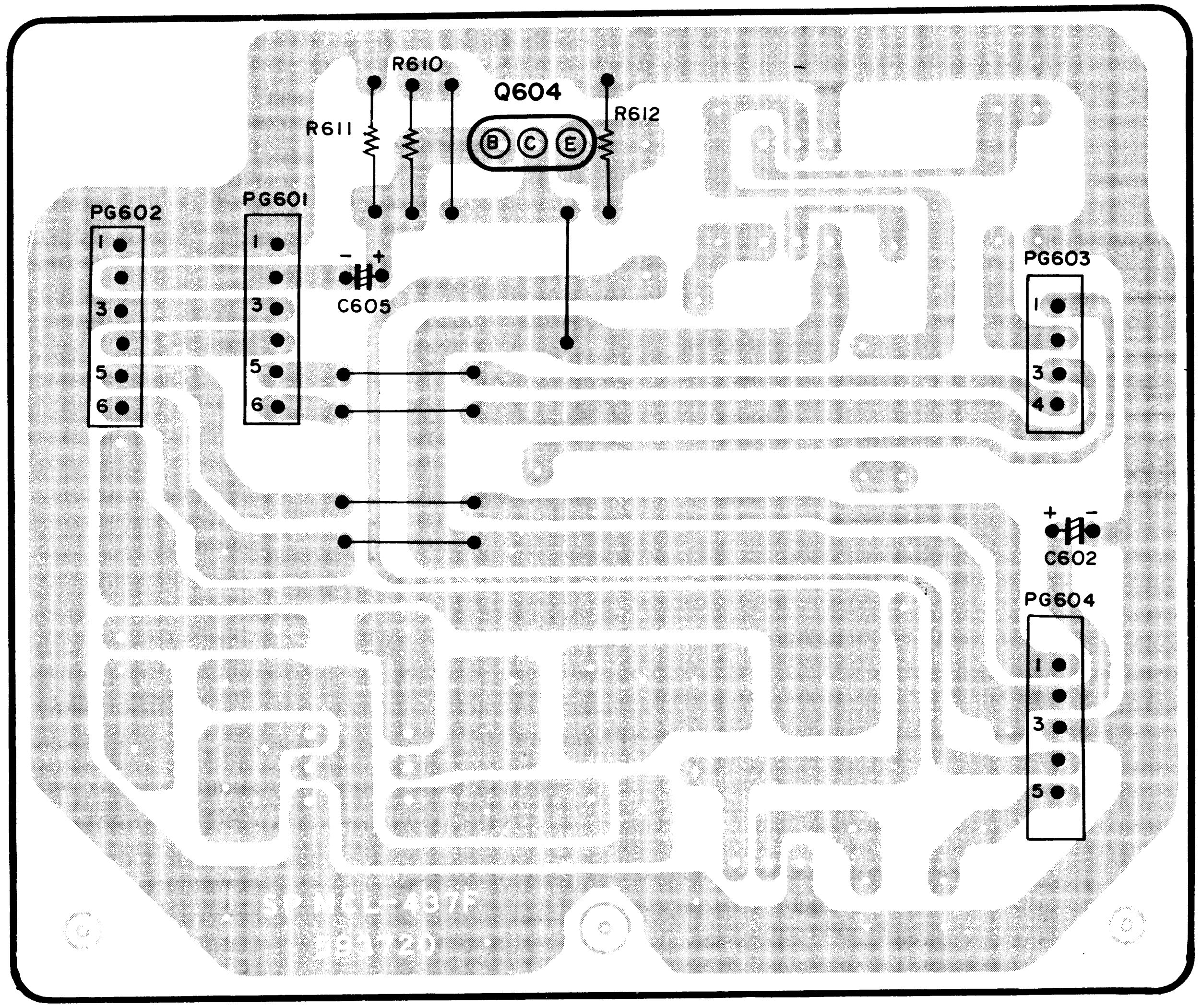
4	(0) (0)	5	(0) (0)
3	(0) (0)	6	(0) (0.3)
2	(0) (0)	7	(-4.2)(0)
1	(-11.5)(11.6)	8	(-12.7)(12.8)

IC904

1	(12.5)(9.3)
2	(-5.6)(5.6)
3	(-0.6)(0.6)

IC905

9	(-0.1)(11.4)
8	(-4.3)(0)
7	(-4.8)(0)
6	(-0.1)(11.4)
5	(0) (0)
4	(-4.3)(0)
3	(0) (1.9)
2	(0) (1.9)
1	(0) (0.7)


R610
Q604
R611
R612
PG602
PG601
C605
PG603
C602
PG604
SP MCL-437F
593720

WIRING P.C.B

PG601

1	GND
2	VIDEO
3	GND
4	AUDIO
5	NO.TAB
6	TIME ON

To
26PIN
CONNECTOR

PG602

1	GND
2	VIDEO
3	GND
4	AUDIO
5	$\overline{\text{PR}}$ 12V
6	12V

To
TUNER/IF
PG751
VIA
CN602

PG603

1	—
2	—
3	TIME ON
4	NO.TAB

To
REGULATOR
PG906

PG604

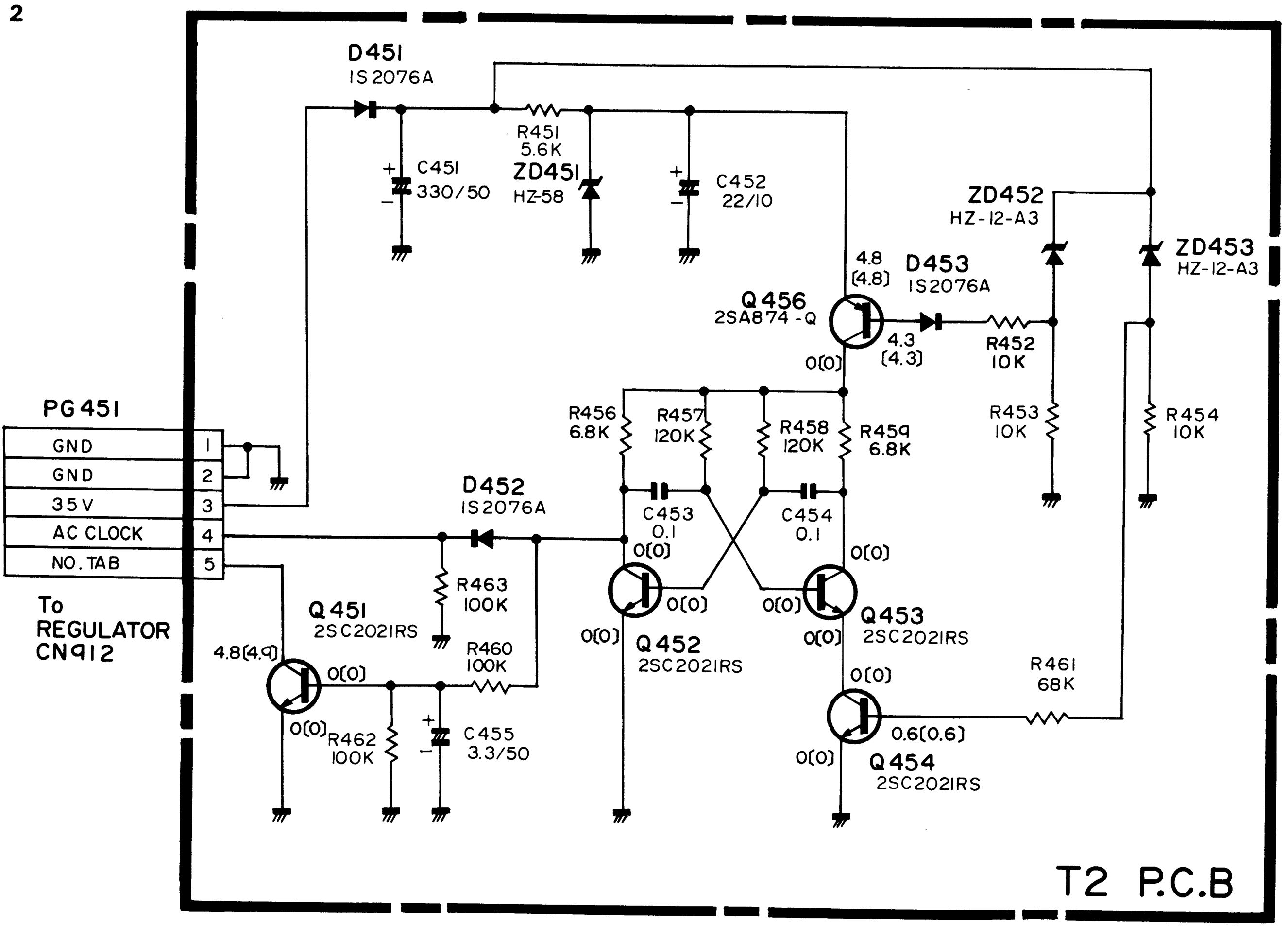
1	$\overline{\text{PB}}$ 12V
2	12V
3	GND
4	VIDEO
5	RFSW2

To
REGULATOR
PG908

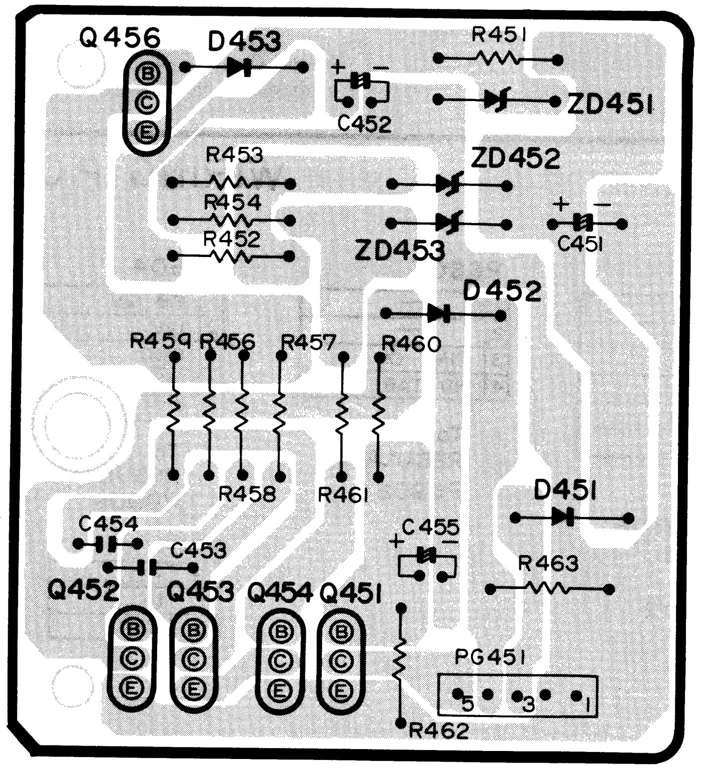
Q604

B	(3.1)
C	(11)
E	(2.4)

REMOTE CONTROL (I-R TRANSMITTER)


D451
1S2076A
R451
5.6K
C451
330/50
ZD451
HZ-58
C452
22/10
ZD452
HZ-12-A3
ZD453
HZ-12-A3
Q456
2SA874-Q
4.8
(4.8)
D453
1S2076A
4.3
(4.3)
R452
10K
0(0)
R453
10K
R454
10K
R456
6.8K
R457
120K
R458
120K
R459
6.8K
PG451
GND 1
GND 2
35V 3
AC CLOCK 4
NO. TAB 5
To
REGULATOR
CN912
D452
1S2076A
C453
0.1
C454
0.1
R463
100K
Q451
2SC2021RS
4.8(4.9)
R460
100K
R462
100K
C455
3.3/50
Q452
2SC2021RS
Q453
2SC2021RS
R461
68K
Q454
2SC2021RS
0.6(0.6)
T2 P.C.B

※ VOLTAGES ARE MEASURED IN PLAY MODE,
AND VOLTAGES IN [ ] ARE MEASRED IN RECORD MODE.


Q456
D453
R451
C452
ZD451
R453
ZD452
R454
R452
C451
ZD453
D452
R459
R456
R457
R460
R458
R461
D451
C454
C453
C455
R463
Q452
Q453
Q454
Q451
PG451
R462

T2 P.C.B

※ VOLTAGES ARE MEASURED IN PLAY MODE,
AND VOLTAGES IN [ ] ARE MEASURED IN RECORED MODE.

Q451

B	0(0)
C	4.8(4.9)
E	0(0)

Q452

B	0(0)
C	0(0)
E	0(0)

Q453

B	0(0)
C	0(0)
E	0(0)

Q454

B	0.6(0.6)
C	0(0)
E	0(0)

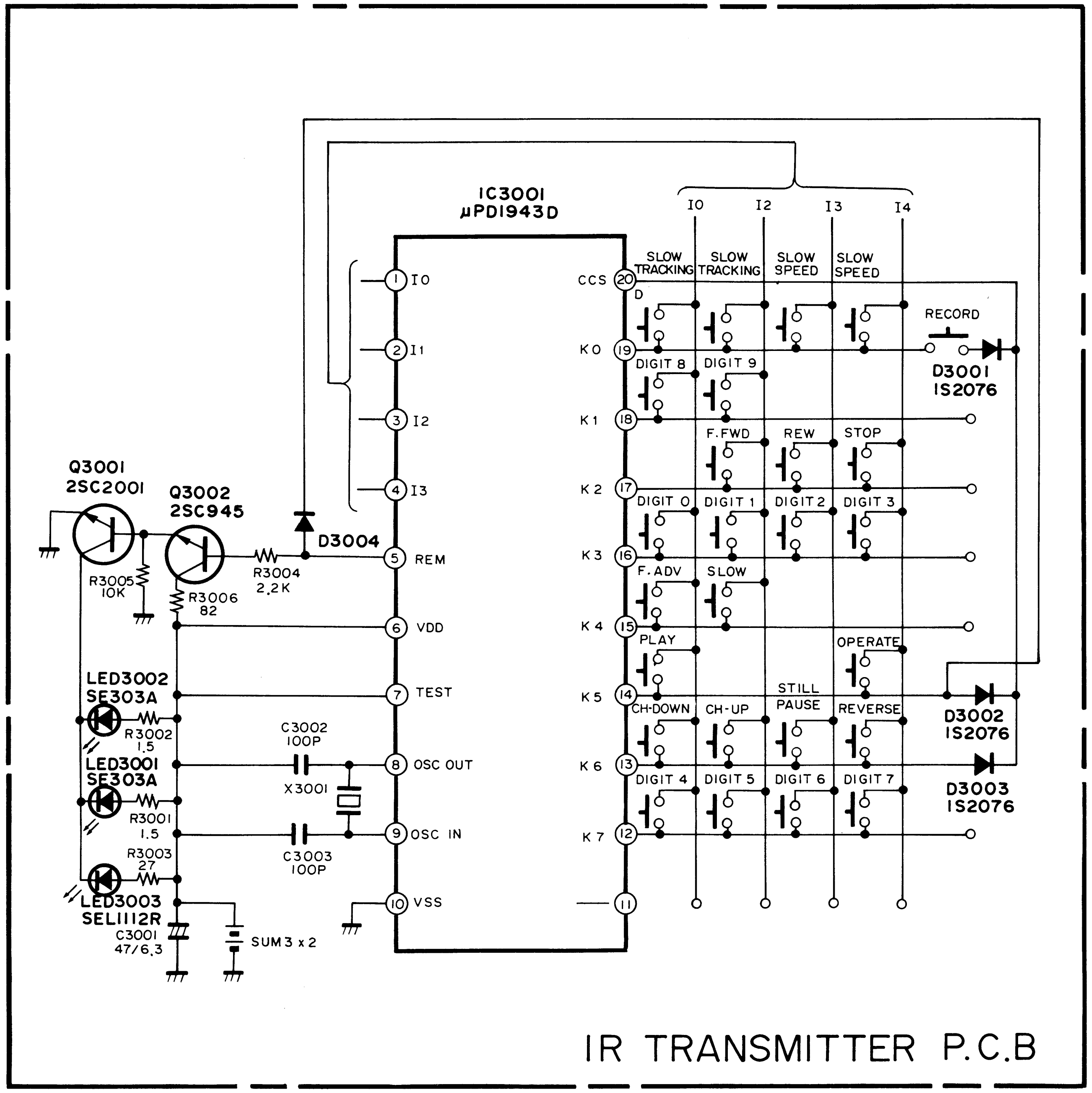
Q456

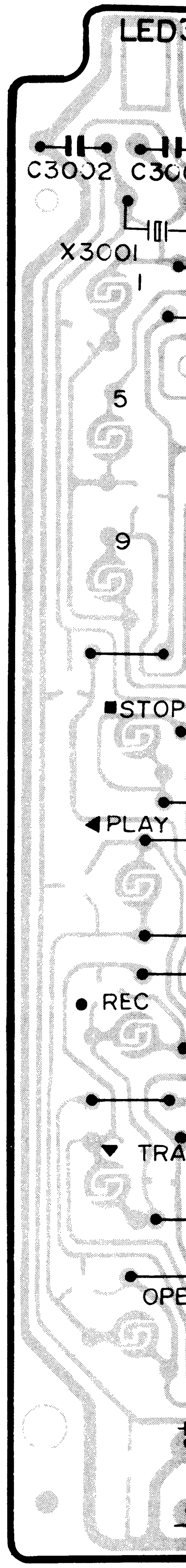
B	4.3(4.3)
C	0(0)
E	4.8(4.8)

PG451

1	GND
2	GND
3	35V
4	AC CLOCK
5	NO. TAB

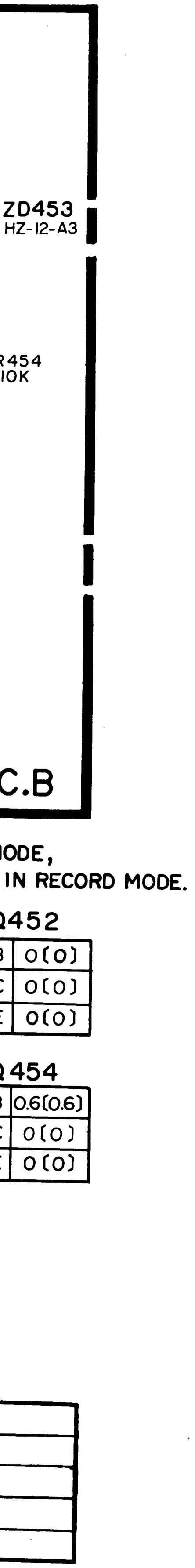
To
REGULATOR
CN912

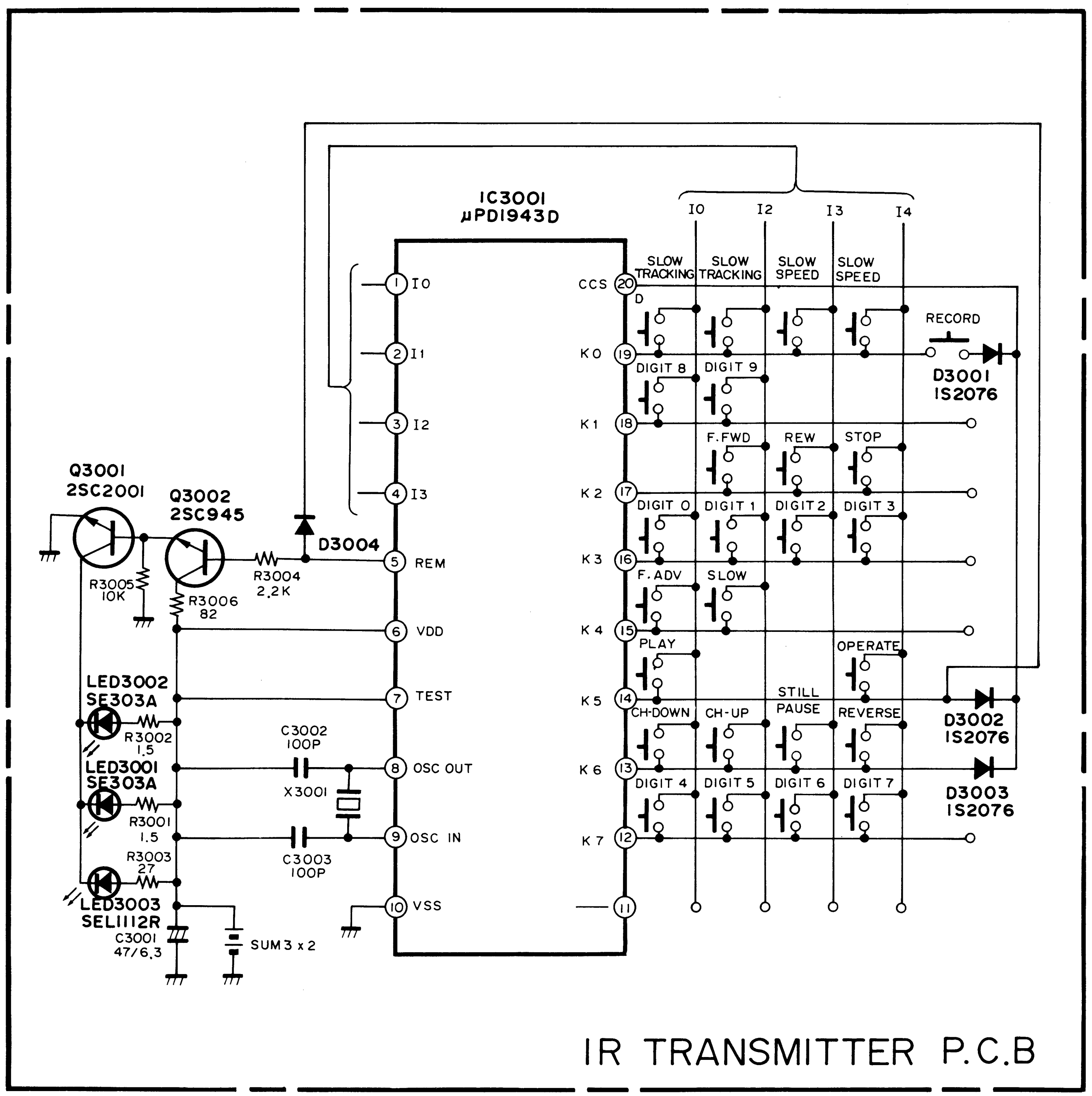

IC3001
μPD1943D
I0
I1
I2
I3
REM
VDD
TEST
OSC OUT
OSC IN
VSS
CCS
K0
K1
K2
K3
K4
K5
K6
K7
SLOW TRACKING
SLOW TRACKING
SLOW SPEED
SLOW SPEED
RECORD
DIGIT 8
DIGIT 9
F.FWD
REW
STOP
DIGIT 0
DIGIT 1
DIGIT 2
DIGIT 3
F.ADV
SLOW
PLAY
OPERATE
STILL PAUSE
CH-DOWN
CH-UP
REVERSE
DIGIT 4
DIGIT 5
DIGIT 6
DIGIT 7
D3001
1S2076
D3002
1S2076
D3003
1S2076
D3004
Q3001
2SC2001
Q3002
2SC945
R3005
10K
R3006
82
R3004
2.2K
LED3002
SE303A
R3002
1.5
LED3001
SE303A
R3001
1.5
R3003
27
LED3003
SEL1112R
C3001
47/6.3
SUM3 x 2
C3002
100P
X3001
C3003
100P
IR TRANSMITTER P.C.B

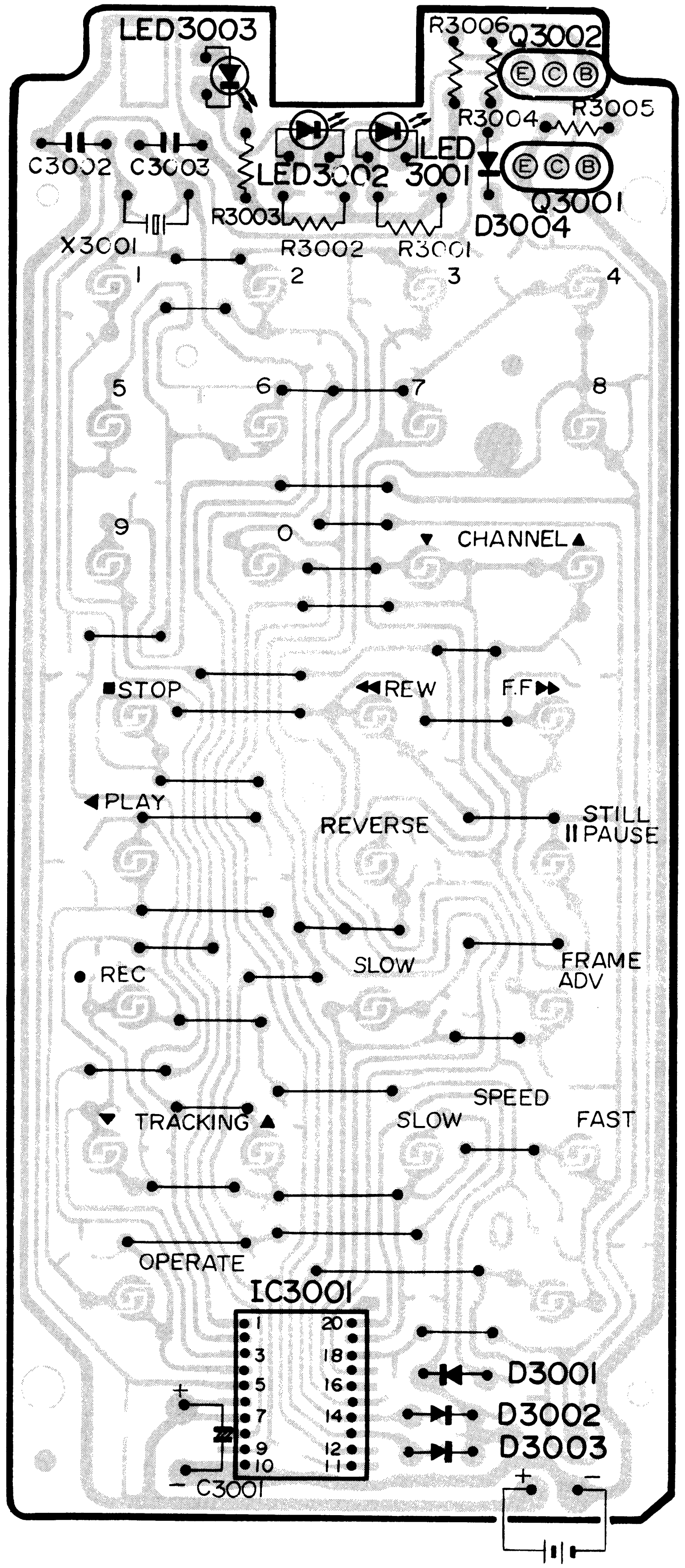

LED3
C3002
C30
X3001
5
9
STOP
PLAY
REC
TRA
OPE

REMOTE CONTROL (I-R TRANSMITTER)

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
SYSTEM CONTROL	58	TUNER/IF (Except for BS)	103
JACK	66	V·S TUNING	108
RF CONVERTER	69	T1	114
REEL MOTOR	71	S1	114
CAPSTAN MOTOR	72	TIMER/INPUT KEY	116
SWITCH REGULATOR	73	REGULATOR	122
SERVO	77	T2	129
Y/CHROMA	87	REMORT CONTROL (I-R TRANSMITTER)	130
AUDIO	94		
TUNER/IF (For BS)	98		


ZD453
HZ-12-A3
R454
10K
C.B
ODE,
IN RECORD MODE.
Q452
0(0)
0(0)
0(0)
Q454
0.6(0.6)
0(0)
0(0)


IC3001
μPD1943D
I0
I2
I3
I4
1 I0
2 I1
3 I2
4 I3
5 REM
6 VDD
7 TEST
8 OSC OUT
9 OSC IN
10 VSS
CCS 20
K0 19
K1 18
K2 17
K3 16
K4 15
K5 14
K6 13
K7 12
11
D
SLOW TRACKING
SLOW TRACKING
SLOW SPEED
SLOW SPEED
RECORD
DIGIT 8
DIGIT 9
F.FWD
REW
STOP
DIGIT 0
DIGIT 1
DIGIT 2
DIGIT 3
F.ADV
SLOW
PLAY
OPERATE
STILL PAUSE
CH-DOWN
CH-UP
REVERSE
DIGIT 4
DIGIT 5
DIGIT 6
DIGIT 7
D3001
1S2076
D3002
1S2076
D3003
1S2076
D3004
Q3001
2SC2001
Q3002
2SC945
R3005
10K
R3006
82
R3004
2.2K
LED3002
SE303A
R3002
1.5
LED3001
SE303A
R3001
1.5
R3003
27
LED3003
SEL1112R
C3001
47/6.3
C3002
100P
X3001
C3003
100P
SUM3 x 2
IR TRANSMITTER P.C.B


LED3003
R3006
Q3002
E C B
R3005
R3004
LED
3001
LED3002
C3002
C3003
R3003
E C B
Q3001
D3004
X3001
R3002
R3001
1
2
3
4
5
6
7
8
9
0
▼ CHANNEL ▲
■STOP
◀◀REW
F.F▶▶
◀PLAY
REVERSE
STILL
II PAUSE
● REC
SLOW
FRAME
ADV
SPEED
▼ TRACKING ▲
SLOW
FAST
OPERATE
IC3001
1
3
5
7
9
10
20
18
16
14
12
11
D3001
D3002
D3003
+
−
C3001
+
−

IR TRANSMITTER P.C.B

REPLACEMENT PARTS LIST

ELECTRICAL PARTS LIST – TAPE DECK (VT-7E)

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C803-804	0256491	ELECTROLYTIC RESISTOR 1F 1,8V
C814	5780802	CAPACITOR BLOCK 100PX2
		RESISTORS
RT201	5007432	SEMI VARIABLE 1,0KOHM
RT202	5007712	SEMI VARIABLE 1KOHM
RT203	5007713	SEMI VARIABLE 2,2KOHM
RT401L,R	5007717	SEMI VARIABLE 47KOHM
RT402L,R	5007719	SEMI VARIABLE 220KOHM
RT403	5007711	SEMI VARIABLE 470OHM
RT517	5007445	SEMI VARIABLE 2,2KOHM
RT624	5007452	SEMI VARIABLE 220KOHM
RT526	5007451	SEMI VARIABLE 100KOHM
RT558	5007451	SEMI VARIABLE 100KOHM
RT560	5007452	SEMI VARIABLE 220KOHM
RT561	5007451	SEMI VARIABLE 100KOHM
RT563	5007452	SEMI VARIABLE 220KOHM
RT573	5007451	SEMI VARIABLE 100KOHM
RT575	5007451	SEMI VARIABLE 100KOHM
RT580,521	5007453	SEMI VARIABLE 470KOHM
RT583	5007452	SEMI VARIABLE 220KOHM
RT599	5005372	VARIABLE RESISTOR 500KOHM B
RT607	5007453	SEMI VARIABLE 470KOHM
RT623	5007452	SEMI VARIABLE 220KOHM
RT702	5007465	SEMI VARIABLE 100KOHM
RT703	5007462	SEMI VARIABLE 10KOHM
R253-254	0170472	FUSE RESISTOR 3,3OHM+-5% 1/4W
R524	0171271	METAL FILM 1MOHM+-1%
R527	0171272	METAL FILM 1,2MOHM+-1%
R606	0171267	METAL FILM RESISTOR
R608	0171268	METAL FILM 2,2MOHM+-1%
R789	0149705	METAL FILM RESISTOR 470 OHM
R859-860	0171266	METAL FILM RESISTOR 10KOHM +-5%
R873	0171262	METAL FILM RESISTOR
R874	0171265	METAL FILM RESISTOR 49,3KOHM
VR801	5007433	SEMI VARIABLE 2,2KOHM
		SEMI-CONDUCTORS
D201-204	5321592	TRANSISTOR LM1090G
D205	5321592	TRANSISTOR LM1090G
D206	5321592	TRANSISTOR LM1090G
D207-208	5321592	TRANSISTOR LM1090G
D401-402	5331592	DIODE 1SS133
D404	5331592	DIODE 1SS133
D405	5330131	DIODE 1S2076
D406	5331592	DIODE 1SS133
D501,537	5331592	DIODE 1SS133
D502	5331511	DIODE DAN201
D503-507	5331592	DIODE 1SS133
D508	5331511	DIODE DAN201
D510-512	5331511	DIODE DAN201
D513	5331592	DIODE 1SS133
D514-515	5331511	DIODE DAN201
D516-520	5331592	DIODE 1SS133
D521,523	5331592	DIODE 1SS133
D522	5331592	DIODE 1SS133
D523-526	5331592	DIODE 1SS133
D527	5331511	DIODE DAN201
D529-530	5331592	DIODE 1SS133
D531	5331511	DIODE DAN201
D532-535	5331592	DIODE 1SS133
D536	5331511	DIODE DAN201
D517	5331511	DIODE DAN201
D545, D547-549	5331592	DIODE 1SS133
D708	5330501	DIODE SILICON U0-5B 60HZ 3MW
D709	5331592	DIODE 1SS133
D712-713	5330104	RECTIFIER SILICON V06A 15K
D714	5331431	DIODE ERB81
D715	5331592	DIODE 1SS133
D720	5331592	DIODE 1SS133
D721	5331592	DIODE 1SS133
D722	5331592	DIODE 1SS133
D751-779	5331592	DIODE 1SS133
D781-784	5331592	DIODE 1SS133
D801-808	5381001	LED SLR-34URCS
D809-810	5331592	DIODE 1SS133
D812	5331511	DIODE DAN201
D811, D814-816	5331592	DIODE 1SS133
D817	5331592	DIODE 1SS133
D901	5330104	RECTIFIER SILICON V06A 15K
D902	5330313	ZENNER DIODE HZ-7C
D903	5331511	DIODE DAN201
D905	5331592	DIODE 1SS133
IC201	5355381	IC HA11745
IC202	5376851	IC HT4258
IC203	5376862	IC HT4259A
IC204	5352441	IC HA11718
IC205	5377071	IC TA4397
IC207	5377051	IC TA4394
IC401L,R	5363321	IC BA5112
IC402L,R	5377032	IC TA4392A
IC403L,R	5377041	IC TA4393
IC501	5355811	IC HA11753NT
IC502	5355891	IC HA11747ANT
IC503	5355801	IC HA11758NT
IC504	5355792	IC HA11757ANT
IC701	5376506	IC TA-4381E
IC702	5350713	IC BA328-LN
IC703	5376514	IC TA4382C

SYMBOL-NO	P-NO	DESCRIPTION
IC704	5355241	IC NJD6506S
IC706	5376181	IC TA4369
IC707	5369272	IC MSM6207ARS
IC781	5355581	IC HA13403
IC801	5369603	IC MB8855-333L
IC802	5369544	IC HD44820B92
IC803	5355741	IC BAL6320
IC804	5369581	IC BAL6304A
IC805	5365481	IC MPD4049C
IC806	5365672	IC MB4204
IC807	5310864	IC S8033H3
IC901	5369171	IC M54543L
Q202	5323012	TRANSISTOR 2SC2603F
Q203	5322992	TRANSISTOR 2SA937R
Q204-205	5323012	TRANSISTOR 2SC2603F
Q206	5322992	TRANSISTOR 2SA937R
Q207,215	5323561	TRANSISTOR DTC124F
Q208-214	5323012	TRANSISTOR 2SC2603F
Q216	5322381	TRANSISTOR 2SD655
Q217,201	5323561	TRANSISTOR DTC124F
Q218	5323012	TRANSISTOR 2SC2603F
Q221-222	5323012	TRANSISTOR 2SC2603F
Q401L,R	5323261	TRANSISTOR 2SC2785
Q402	5320813	TRANSISTOR 2SC945P
Q403	5322993	TRANSISTOR 2SA937QR
Q404	5321662	TRANSISTOR 2SC2021S
Q405	5322993	TRANSISTOR 2SA937QR
Q411,Q406L,R	5323261	TRANSISTOR 2SC2785
Q501	5323261	TRANSISTOR 2SC2785
Q502	5323502	TRANSISTOR 2SA1175
Q503-507	5323261	TRANSISTOR 2SC2785
Q508-509	5323261	TRANSISTOR 2SC2785
Q510-512,514	5323261	TRANSISTOR 2SC2785
Q701-702	5322731	TRANSISTOR 2SA952M
Q703-705	5323012	TRANSISTOR 2SC2603F
Q706	5323502	TRANSISTOR 2SA1175
Q707-708	5323012	TRANSISTOR 2SC2603F
Q710-713	5323012	TRANSISTOR 2SC2603F
Q714-715	5323012	TRANSISTOR 2SC2603F
Q716	5323502	TRANSISTOR 2SA1175
Q717-718	5323012	TRANSISTOR 2SC2603F
Q781-782	5323012	TRANSISTOR 2SC2603F
Q801	5323261	TRANSISTOR 2SC2785
Q802	5323261	TRANSISTOR 2SC2785
Q803-806	5323261	TRANSISTOR 2SC2785
Q807-827	5322993	TRANSISTOR 2SA937QR
Q828,829	5323261	TRANSISTOR 2SC2785
Q831	5323261	TRANSISTOR 2SC2785
Q901-902	5321666	TRANSISTOR 2SC2021-SE
Q903-904	5380471	PHOTO TRANSISTOR PN150TV
Q905	5381041	PHOTO TRANSISTOR N1L5141E-AB

SYMBOL-NO	P-NO	DESCRIPTION
Q921	5323012	TRANSISTOR 2SC2603F
Q922	5323502	TRANSISTOR 2SA1175
ZD801	5330312	DIODE-ZENER SILICON
ZD802	5330325	DIODE HZ9A2
ZD803	5330713	DIODE HZ-3B
ZD804	5330312	DIODE-ZENER SILICON
ZD805	5330322	DIODE-ZENER SILICON TR-9S 10K
D550	5330322	" " HZ6A1
		TRANSFORMERS
T401	5261021	OSC BLOCK
		COILS
L201	5152337	CHOKE COIL 100UH+-10%
L202	5152603	CHOKE COIL 47MF
L204	5152602	CHOKE COIL 39MH
L205	5152601	CHOKE COIL 33MH
L206-207	5152337	CHOKE COIL 100UH+-10%
L208	5152594	CHOKE COIL 10MH
L209	5152337	CHOKE COIL 100UH+-10%
L210	5152349	CHOKE COIL 820MH
L211,214	5152337	CHOKE COIL 100UH+-10%
L212-213	5152349	CHOKE COIL 820MH
L215	5152339	CHOKE COIL 150UH+-10%
L216	5152596	CHOKE COIL 15MH
L401L,R	5120922	BIAS TRAP COIL
L402L,R	5152624	CHOKE COIL 5600MH
L403	5152346	CHOKE COIL 470UH+-10%
L404	5152098	CHOKE COIL 680MICROH
L405	5152621	CHOKE COIL 10MH+-10%
L405	5152626	CHOKE COIL 1800MH
L501	5152337	CHOKE COIL 100UH+-10%
L701L,R	5152349	CHOKE COIL 820MH
L710	5152337	CHOKE COIL 100UH+-10%
L711	5152333	CHOKE COIL 47UH +-10%
L801-802	5152349	CHOKE COIL 820MH
		CRYSTALS
X201	5780981	X-OSC BLOCK
X701	5780691	XTAL
X801	5780801	CERAMIC FILTER 3.58MHZ
		MISCELLANEOUS
	5720181	FUSE HOLDER
	6870541	HOLDER
CP201	5162242	LOW PASS FILTER
CP202	5162591	DELAY LINE
CP203	5162474	LOW PASS FILTER
CP204	5124071	TRAP COIL
CP205	5162503	LOW PASS FILTER

SYMBOL-NO	P-NO	DESCRIPTION
CP207	5162592	HIGH PASS FILTER
CP208	5162475	BAND PASS FILTER
CP209	5162593	BAND PASS FILTER
CP210	5162594	LOW PASS FILTER
DL201	5785192	DELAY LINE
DL202	5785381	DELAY LINE
F701	5721065	FUSE 3.15A
F702-703	5721062	FUSE 4A 250V
POS901	0249794	POSITIVE THERMISTOR
RL201	5641591	RELAY
RL401	5641481	RELAY
RL402	5641481	RELAY
RL701	5641553	RELAY
S701-702	5624451	SLIDE SWITCH
S703	5624131	SLIDE SWITCH
S801-808	5633911	SWITCH
S809	5633554	PUSH SWITCH
S902	5633991	PUSH SWITCH
S910-911	5633911	SWITCH

ELECTRICAL PARTS LIST – TUNER TIMER (VT-TU7E)

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C112	0256388	TANTALUM ELECTROLYTIC 10MF,10V
C116	0256388	TANTALUM ELECTROLYTIC 10MF,10V
C922	0256482	ELECTROLYTIC 0.22F
C936	025648	ELECTROLYTIC 0.22F
		RESISTORS
RB101	5068311	RESISTOR BLOCK
RB701	5068311	RESISTOR BLOCK
RT801	5007446	SEMI VARIABLE RESISTOR 4.7KOHM
R935-936	0171035	OXIDE METAL FILM 0.22OHM +-10% 1W
R981	0171038	OXIDE METALFILM 33OHM +-5% 2W
R987	0170473	FUSE RESISTOR 4.7OHM+-5%
		SEMI-CONDUCTORS
D102-110	5331592	DIODE 1SS133
D111	5331592	DIODE 1SS133 (SW,SA)
D111	5331592	DIODE 1SS133 (E,SEV,AU)
D112-120	5331592	DIODE 1SS133
D121-125	5331592	DIODE 1SS133
D126	5331592	DIODE 1SS133 (AU,SW,SA)
D128	5331592	DIODE 1SS133
D129	5330573	DIODE 1S2473 (E,SEV,SW)
D131	5330573	DIODE 1S2473 (BS)
D132	5330573	DIODE 1S2473 (SA,SW)
D133	5331592	DIODE 1SS133
D135	5331592	DIODE 1SS133
D141	5380892	PHOT. DIODE PH302
D401	5330573	DIODE IS2473
D701	5331592	DIODE 1SS133
D801	5331592	DIODE 1SS133 (SW,SA)
D801	5331592	DIODE 1SS133 (E,SEV,S,AU)
D902-903	5332192	DIODE ERB12-02
D904-907	5331642	DIODE RA21
D702,D908	5330573	DIODE IS2473
D910	5330573	DIODE IS2473
D911	5332192	DIODE ERB12-02
D913-914	5330573	DIODE IS2473
D917,915	5330131	DIODE IS2076
D920-923	5330573	DIODE IS2473
D924	5330573	DIODE IS2473
D925	5332192	DIODE ERB12-02
D926	5330573	DIODE IS2473
D927-928 D932,D933	5331592	DIODE 1SS133
D929	5330573	DIODE IS2473
D930	5330501	DIODE SILICON U0-5B 60HZ 3MW
IC101	5361291	IC MPD7519G
IC102	5355261	IC MPC1373H
IC401	5359901	IC UPD4066C
IC402	5359501	IC MPD4011C
IC701	5369875	IC MPD1511-159
IC702	5361071	IC M58657P
IC801	5368311	IC LA-7808
IC802	5365672	IC MB4204
IC803	5359501	IC MPD4011C
IC804	5355611	IC LA7910 (SW,SA)
IC804	5355611	IC LA7910 (E,SEV,AU)
IC901	5353482	IC STR2012A
IC902	5352771	IC NJM2904
IC904	5352783	IC UPC78M05H
IC905	5355241	IC NJD6506S
LD101	5380491	LED LN81CPHL
LD102	5380691	LED SLR34UR
LD103	5380491	LED LN81CPHL
LD104	5380491	LED LN81CPHL (AU,SW,SA)
LD105	5380491	LED LN81CPHL
LD106	5380691	LED SLR34UR
Q101-102	5321663	TRANSISTOR 2SC2021RS
Q103,Q806	5322883	TRANSISTOR 2SA874-PQ
Q104-105	5321663	TRANSISTOR 2SC2021RS
Q401-403	5321663	TRANSISTOR 2SC2021RS
Q601	5320593	TRANSISTOR 2SA673C (AU)

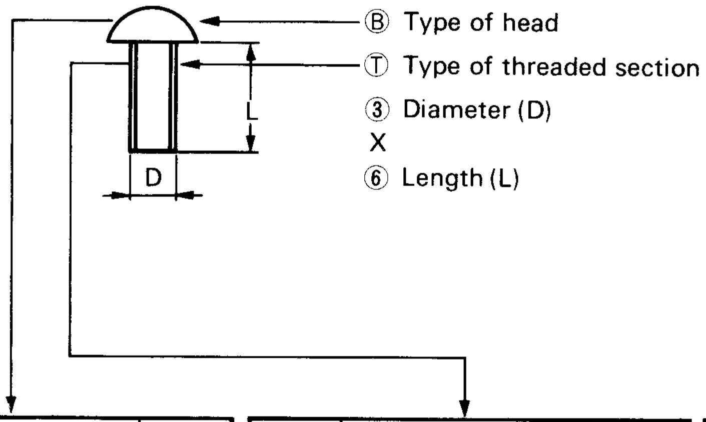
SYMBOL-NO	P-NO	DESCRIPTION
Q602-603	5320813	TRANSISTOR 2SC945P (AU)
Q604	5320813	TRANSISTOR 2SC945P
Q701	5321663	TRANSISTOR 2SC2021RS
Q705-706	5321663	TRANSISTOR 2SC2021RS
Q801	5320593	TRANSISTOR 2SA673C
Q802-804	5321663	TRANSISTOR 2SC2021RS
Q805	5322883	TRANSISTOR 2SA874-PQ (BS)
Q806	5321663	TRANSISTOR 2SC2021RS
Q901	5321663	TRANSISTOR 2SC2021RS
Q902	5320813	TRANSISTOR 2SC945P
Q903	5320613	TRANSISTOR 2SC1213C
Q905	5320813	TRANSISTOR 2SC945P
Q907-909	5321252	2SA844D
Q910	5320813	TRANSISTOR 2SC945P
Q911	5320813	TRANSISTOR 2SC945P
Q912	5320603	TRANSISTOR SILICON 2SA673A-C 80MHZ 400MW
Q913-916	5320813	TRANSISTOR 2SC945P
Q917	5321301	TRANSISTOR 2SC1061
ZD101	5332451	ZENNER DIODE RD4,7JB1,2
ZD102	5330393	ZENER DIODE SILICON HZ6C 1MHZ
ZD103-104	5330324	DIODE HZ9B1
ZD701	5331012	ZENER DIODE HZ5B
ZD801	5350611	IC UPC574J
ZD901	5331491	ZENNER DIODE HZ22-1
ZD902	5331271	ZENNER DIODE HZ18
ZD903	5330532	DIODE SILICON HZ-12B 1.0M
ZD904	5330531	ZENER DIODE SILICON HZ-12A 10MHZ 400MW
ZD906-907	5330542	DIODE HZ15-3
ZD908	5331012	ZENER DIODE HZ5B
ZD910	5330531	ZENER DIODE SILICON HZ-12A 10MHZ 40CMW

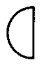
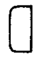
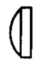
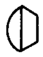
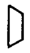
SYMBOL-NO	P-NO	DESCRIPTION
		COILS
L101	5152625	COIL
L102	5152472	CHOKE COIL 100MICROH
L901	5152421	CHOKE COIL 220UH+-10%
L902	5150761	CHOKE COIL
L903	5150573	CHOKE COIL
		CRYSTALS
X101	5780991	XTAL
X701	5780651	3.58MHZ XTAL
		MISCELLANEOUS
	5311021	TIMER DISPLAY
	5722131	1P FUSE HOLDER
	5722211	FUSE HOLDER
	6746881	FUSE COVER
F902	5720171	FUSE
F903	5721065	FUSE 3.15A
J901	5672141	DC JACK
RL901	5641501	RELAY
S102	5622193	SLIDE SWITCH
S103	5624453	SLIDE SWITCH
S104-109	5633911	SWITCH
S110	5633911	SWITCH (SW SA)
S110	5633911	SWITCH (E,SEV,AU)
S111-124	5633911	SWITCH
S125	5633911	SWITCH (AU)
S127-128	5633911	SWITCH
T1A	5720179	FUSE 1A
Q451-454	5321663	TRANSISTOR 2SC2021RS
Q456	5322882	TRANSISTOR 2SA874-Q
D451-453	5330131	DIODE 1S2076A
ZD451	5331012	ZENNER DIODE HZ-5B
ZD452-453	5330534	ZENNER DIODE HZ-12A3

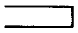
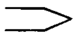
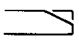
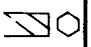
EXPLODED VIEWS

SCREW CLASSIFICATION

Example: BT3 × 6



Abbre-viation	Name	Shape
No symbol	Brazier head	
P	Pan head	
B	Binding head	
O	Oval countersunk head	
F	Flat countersunk head	

Abbre-viation	Name	Shape
No symbol	Machine (clamps without tapping)	
t	Tapping (clamps with tapping) Type 1	
T	Tapping (clamps with tapping) Type 2	
f	Forming tight (for metal)	

Note Since the forming tight screw tightens while self-tapping. machine screws can be replaced by tapping screws.

Washers and Nuts

Abbre-viation	Name	Shape
W LW LW	Washer Spring washer Locking washer	
E	E-ring	
N	Nut	

Note Internal dia is indicated for nuts and washers.

LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks

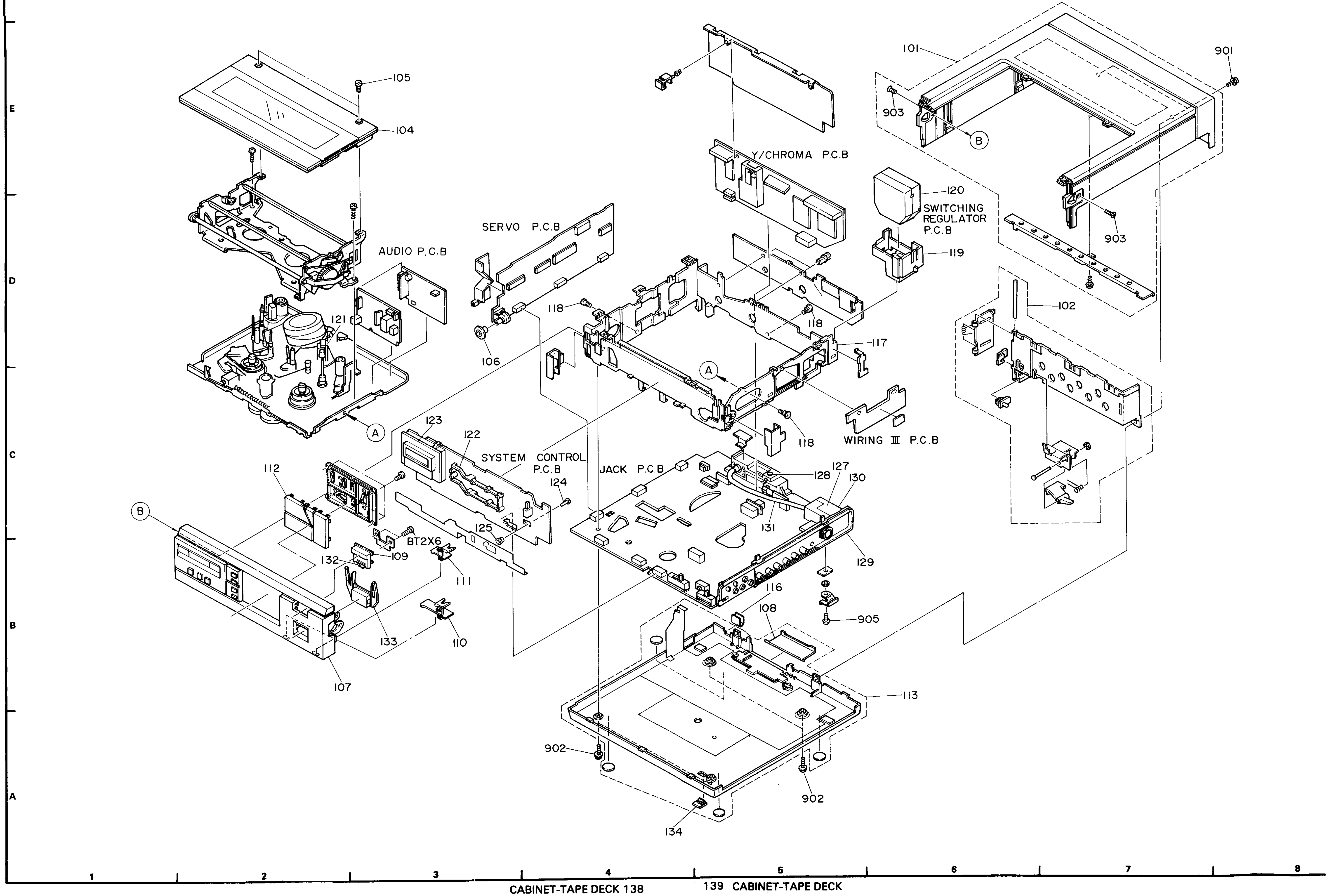
Lubricants shown in the diagram are as follows.

Ⓟ Pan motor oil (× 10W-40)
Ⓢ Sonic slider oil (♯ 1600)
(Si) Silicone grese (KS-64)
Ⓗ Hitazol (MO-138)
No symbol Froil (GB-TS-)

CABINET ASSEMBLY PARTS LIST – TAPE DECK (VT-7E)

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
101	6020991	TOP CASE (SW,SA,HSI)
101	6020991	TOP CASE (E,SEV,AU)
101	6020992	TOP CASE (BS)
102	6488508	BATTERY CASE ASSEMBLY
104	6187631	CASSETTE LID ASSEMBLY (SW,SA,HSI)
104	6187631	CASSETTE LID ASSEMBLY (E,SEV,AU)
104	6187632	CASSETTE LID ASSEMBLY (BS)
105	7547748	SPECIAL SCREW
106	6284251	KNOB (TRACKING)
107	6235581	FRONT PANEL ASSEMBLY (BS)
107	6235584	FRONT PANEL ASSEMBLY (SW,SA,HSI)
107	6235584	FRONT PANEL ASSEMBLY (E,SEV,AU)
108	6871511	JACK COVER
109	6058457	POWER BUTTON (E,SEV,AU)
109	6058457	POWER BUTTON (SW SA HSI)
109	6058458	POWER BUTTON (BS)
110	6065391	KNOB
111	6058672	KNOB (BS,E,SEV)
111	6058672	KNOB (HSI)
111	6058672	KNOB (AU,SW,SA)
112	6871126	FUNCTION BUTTON ASSEMBLY
113	6020267	BOTTOM CASE ASSEMBLY
116	6058482	CAP
117	6871183	FRAME
118	7782921	SCREW
119	6871162	HOLDER(SWITCHING REGULATOR)
120	5270984	SWITICHING REGULATOR
121	6864241	CAP
122	6872092	LED HOLDER
123	6871172	COUNTER HOLDER
124	6871401	EJECT PEACE
125	6871141	EJECT PEACE HOLDER
127	6876031	RF COVER
128	5672683	JACK PLATE T
129	5672791	JACK PLATE
130	5587131	RF CONVERTOR (BS E,SEV)
130	5587131	RF CONVERTOR (SW,SA,HSI)
130	5587132	RF CONVERTOR (AU)
131	5841784	CABLE WITH PLUG
132	6536661	SPRING
133	6058476	EJECT BUTTON (BS)
133	6058477	BUTTON (E,SEV,AU)
133	6058477	BUTTON (SW,SA,HSI)
134	6872841	CAP C

CABINET ASSEMBLY – TAPE DECK (VT-7E)


105
104
101
901
903
B
Y/CHROMA P.C.B
120
SWITCHING
REGULATOR
P.C.B
903
119
SERVO P.C.B
AUDIO P.C.B
121
118
106
118
117
102
A
118
WIRING Ⅲ P.C.B
A
123
122
SYSTEM CONTROL
P.C.B
JACK P.C.B
127
128
130
112
124
B
131
125
BT2X6
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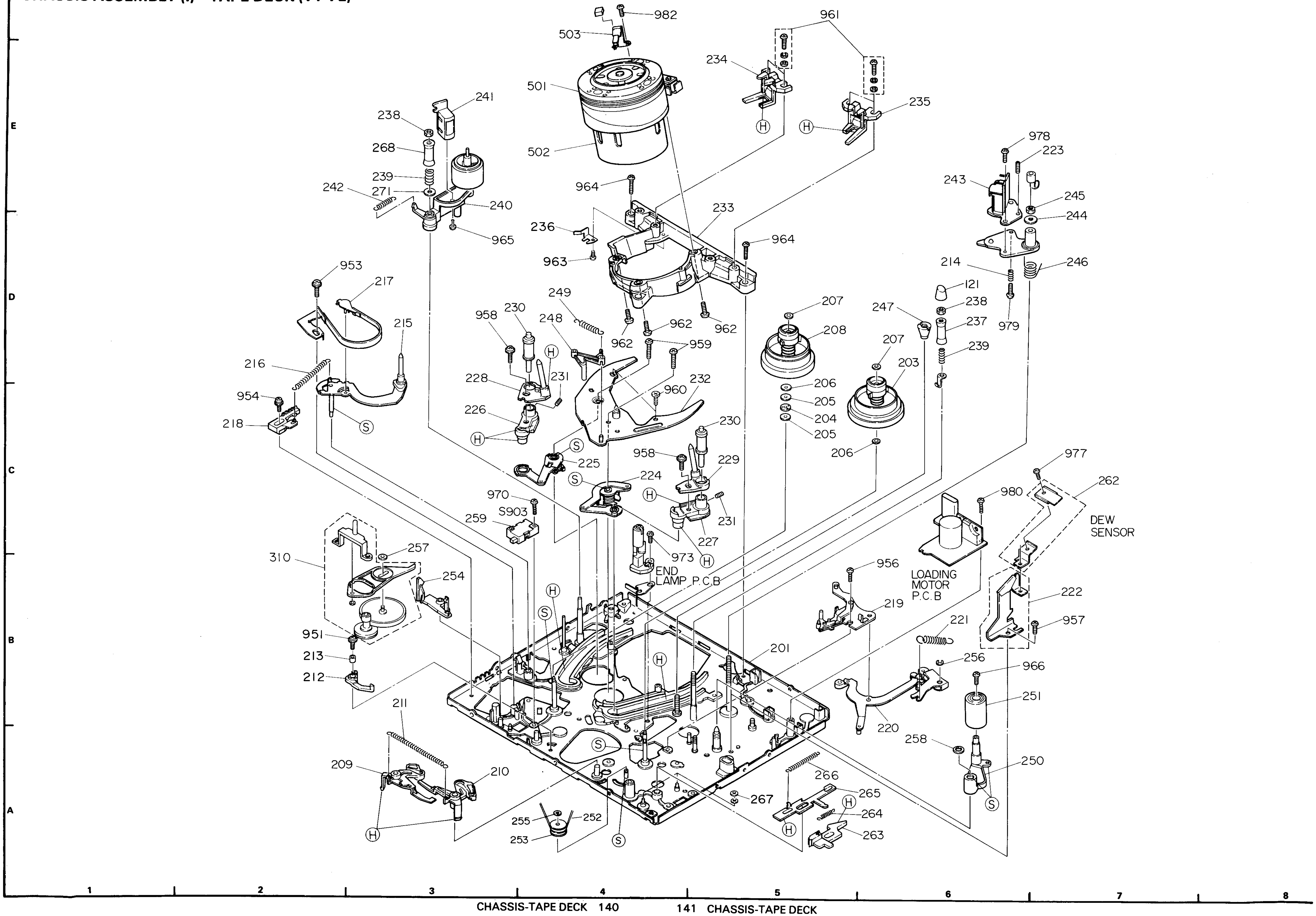
CHASSIS ASSEMBLY (I) – TAPE DECK (VT-7E)



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S903
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LAMP P.C.B
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980
DEW
SENSOR
LOADING
MOTOR
P.C.B
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222
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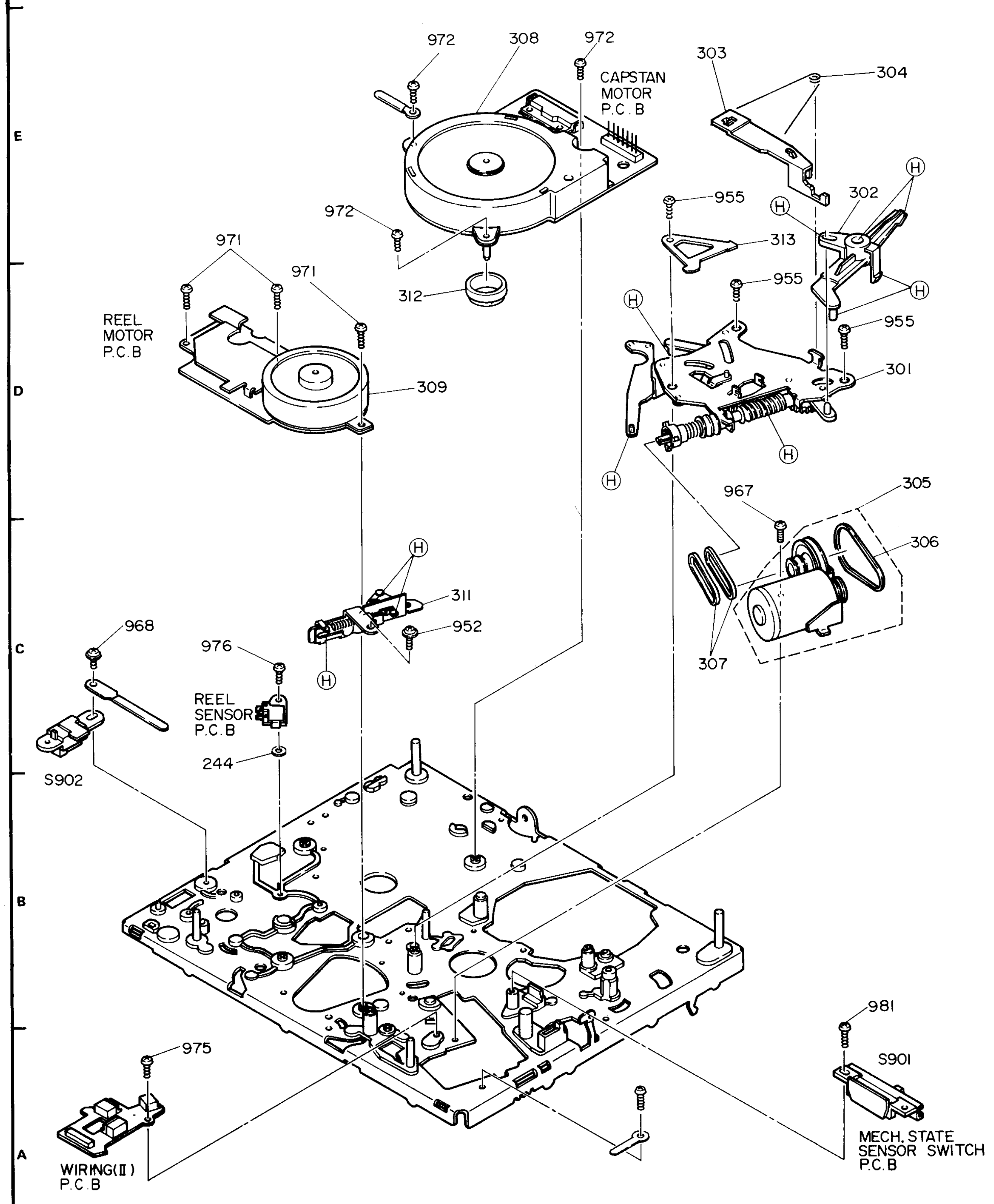
MECHANICAL PARTS LIST – TAPE DECK (VT-7E)

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
203	6414802	TAKE-UP REEL ASSEMBLY
204	6865761	RETAINER
205	7787032	THRUST SUPPORTER
206	7787412	WASHER
207	7778859	POLYSLIDER WASHER
208	6414655	SUPPLY REEL TABLE ASSEMBLY
209	6870324	BRAKE L
210	6870392	BRAKE R
211	6302477	SPRING
212	6870304	BRAKE ARM
213	7571804	CO11AR
214	6304901	SPRING
215	7379993	TENSION ARM ASSEMBLY
216	6302083	SPRING
217	7379912	TENSION BAND
218	6870553	HOLDER (B.T.SPRING)
219	7380092	BRAKE BASE ASSEMBLY
220	7380104	P.R LINK ASSEMBLY
221	6320172	SPRING
222	7380025	PLATE
223	7773086	SCREW
224	7380181	LOADING LINK R ASSEMBLY
225	7380191	LOADING LINK L ASSEMBLY
226	6977585	GUIDE ROLLER BASE (IN)
227	6977587	GUIDE ROLLER BASE (OUT)
228	6977481	INCLINED GUIDE (SUPPLY)
229	6977491	INCLINED GUIDE (TAKE-UP)
230	6344252	GUIDE ROLLER SHAFT
231	7773083	SCREW
232	7376175	GUIDE BASE HOLDER
234	6977561	CATCHER (SUPPLY)
235	6977571	CATCHER (TAKE-UP)
236	6536241	SPRING
237	7553841	TAPE GUIDE
238	8821114	3D NUT
239	6304903	SPRING
240	6866116	IMPEDANCE ARM
241	5447101	FEHEAD
242	6302391	SPRING
243	5447361	ACE HEAD
244	7786245	WASHER
245	8821114	3D NUT
246	6547812	SPRING
247	7549271	X-ADJUST SCREW
248	6870331	SUB BRAKE
249	6300084	SPRING
250	6978092	PRESSURE ROLLER ARM
251	6383762	PRESSURE ROLLER
252	6354401	BELT

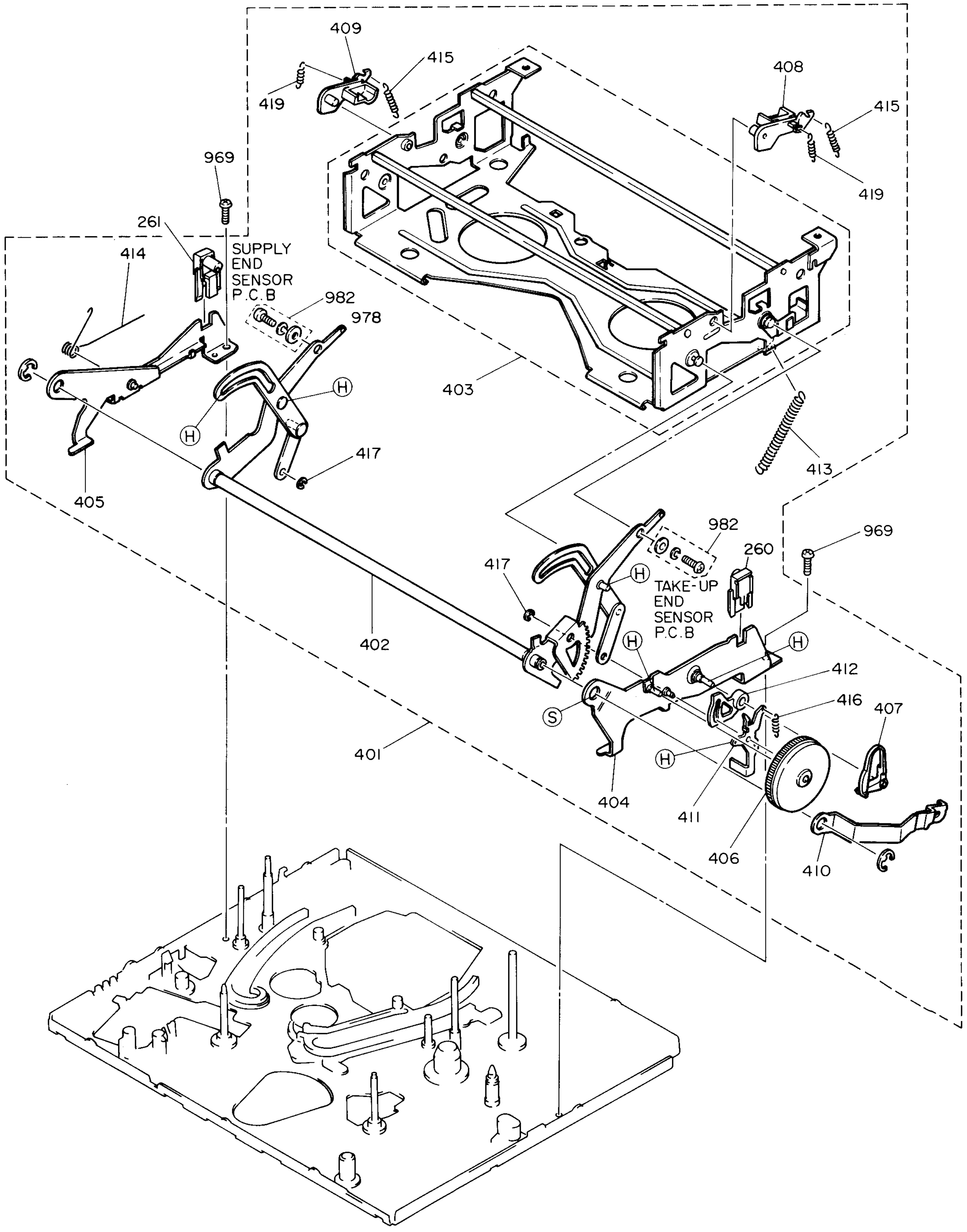
SYMBOL-NO	P-NO	DESCRIPTION
253	6421691	PULY
254	6870511	RECORDING PREVENTION ARM
255	7786114	POL-YSLIDER WASHER
256	7230901	E RING
258	7788143	POLYSLIDER WASHER
259	5633971	SWITCH (S141)
260	6870662	HOLDER(ES.P.C.B)R
261	6870673	HOLDER(ES P.C.B)L
263	6870314	EJECT ARM
264	6301544	SPRING
265	7379982	EJECT SLIDER
266	6300084	SPRING
267	7786114	POL-YSLIDER WASHER
268	7558191	TAPE GUIDE
271	8812114	WASHER - 3MMD SMALL
301	7380266	LOADING GEAR ASSEMBLY
302	6865791	TENTION ARM
303	6865732	MODE SLIDER
304	6547821	SPRING
305	7382132	LOADING MOTOR ASSEMBLY
306	6355721	COUNTER BELT
307	6355911	BELT
308	5575294	CAPSTAN MOTOR
309	5575302	REEL MOTOR
310	6875386	FRP IDLER ASSEMBLY
311	7380056	BRAKE SLIDER
401	7380278	CASSETTE HOLDER ASSEMBLY
402	7380176	LINK ASSEMBLY
403	7380287	CASSETTE HOLDER
404	7380114	BRAKET R
405	7379962	BRAKET L
406	6866062	DUMPER ASSEMBLY
406	6866081	CLUTCH ARM
408	6870452	ARM R
409	6870462	ARM L
410	7379853	PLATE
411	7380083	LOCK ARM
412	6872791	ARM
413	6543434	SPRING
414	6547882	SPRING
415	6543444	SPRING
416	6542571	LOCK SPRING
419	6543445	SPRING
501	5458434	UPPER CYLINDER
502	5458614	LOWER CYLINDER ASSEMBLY
503	5792132	BRUSH
504	5575285	D MOTOR ASSEMBLY
901	8661406	SCREW(3X6PW)
902	7781137	SCREW(BT3X16B)
903	8725408	SCREW - 3MMD X 8MM FLAT
905	8741406	BIND SCREW - 3MMD X 6MM

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
951	8711408	SCREW-3MMD X 8MM SCREW
952	7781133	BT SCREW-3MMD
953	7781133	BT SCREW-3MMD
954	8652408	SCREW (PSW3X8)
955	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
956	8691406	SCREW BT3X6
957	8741405	SCREW - 3MMD X 5MM BIND
958	8651408	SCREW WITH WASHER
959	8741405	SCREW - 3MMD X 5MM BIND
960	7782781	SCREW 3X8BT
961	7782761	SCREW(B3X8 WITH S.WASHER)
962	7783251	SCREW
963	8711103	PAN HEAD SCREW-2MMDX3MM
964	8741412	SCREW (B3X12)
965	8741103	SCREW(2X3B)
966	0741304	BIND SCREW-2.6MMDX4MM
967	8741405	SCREW - 3MMD X 5MM BIND
968	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
969	8741405	SCREW - 3MMD X 5MM BIND
973	8741405	SCREW - 3MMD X 5MM BIND
973	8741405	SCREW - 3MMD X 5MM BIND
974	8741408	SCREW (B3X8)
976	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
978	7781872	SCREW-3MMDX8MM
979	8741414	BINDING SCREW - 3MMD X 14MM
982	8652405	SCREW 3X5 WITH WASHER
		FOR ACCESSARIES
	5761342	BATTERY PACK
	5731091	EARPHONE
	5746623	CABLE (BS)
	5898876	CONNECTOR CORD (SW,SA,HSI)
	5898876	CONNECTOR CORD (E,SEV,AU)
	6334992	SHOULDER BELT (BS,E,SEV)
	6334992	SHOULDER BELT (SW,SA,HSI)
	7030663	SHOULDER BAG (AU)

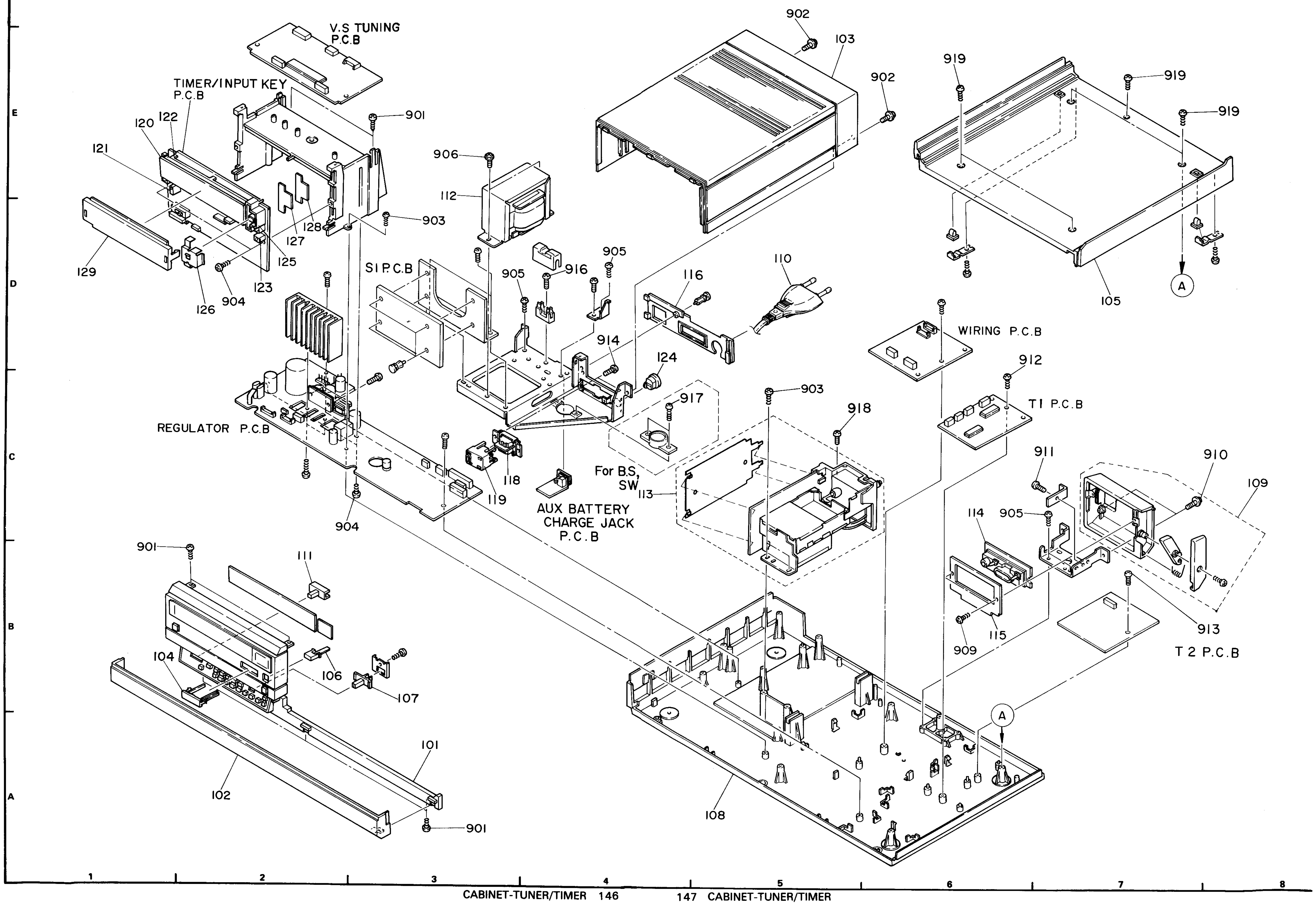
CHASSIS ASSEMBLY (II) – TAPE DECK (VT-7E)


E
D
C
B
A
972
308
972
CAPSTAN MOTOR P.C.B
303
304
972
955
313
302
H
971
971
312
955
955
REEL MOTOR P.C.B
301
309
305
967
306
311
952
968
976
REEL SENSOR P.C.B
307
244
S902
981
975
S901
MECH. STATE SENSOR SWITCH P.C.B
WIRING(II) P.C.B

CASSETTE HOLDER ASSEMBLY – TAPE DECK (VT-7E)


409
415
408
415
419
419
969
261
414
SUPPLY END SENSOR P.C.B
982
978
403
H
405
417
413
982
260
969
417
TAKE-UP END SENSOR P.C.B
402
412
416
407
S
401
404
411
406
410

CABINET ASSEMBLY - TUNER/TIMER (VT-TU7E)


V.S TUNING
P.C.B
TIMER/INPUT KEY
P.C.B
902
103
902
919
919
919
901
906
120
122
121
112
903
128
127
125
129
123
126
904
905
916
905
S1 P.C.B
116
110
105
A
WIRING P.C.B
914
124
912
917
903
918
T1 P.C.B
REGULATOR P.C.B
118
119
904
For B.S,
SW
113
AUX BATTERY
CHARGE JACK
P.C.B
911
910
109
114
905
901
111
104
106
107
909
115
913
T 2 P.C.B
A
101
102
108
901
E
D
C
B
A
1
2
3
4
5
6
7
8

CABINET ASSEMBLY PARTS LIST – TUNER/TIMER (VT-TU7E)

SYMBOL-NO	P-NO	DESCRIPTION
FOR FINAL ASSEMBLY		
101	6235441	FRONT PANEL ASSEMBLY (E,SEV)
101	6235441	FRONT PANEL ASSEMBLY (SA,SW)
101	6235444	FRONT PANEL ASSEMBLY (AU)
101	6235445	FRONT PANEL ASSEMBLY (BS)
102	6174844	TIMER LID ASSEMBLY (SA,SW)
102	6174844	TIMER LID ASSEMBLY (E,SEV,AU)
102	6174846	TIMER LID ASSEMBLY (BS)
103	6020861	TOP CASE (SA,SW)
103	6020861	TOP CASE (E,SEV,AU)
103	6020862	TOP CASE (BS)
104	6066241	CHANNEL BUTTON
105	6020981	TOP COVER ASSEMBLY (SA,SW)
105	6020981	TOP COVER ASSEMBLY (E,SEV,AU)
105	6020982	TOP COVER ASSEMBLY (BS)
106	6066231	IRT BUTTON
107	6075151	SLIDE KNOB
108	6021061	BOTTOM CASE ASSEMBLY (E,SEV,AU)
108	6021061	BOTTOM CASE ASSEMBLY (SA)
108	6021062	BOTTOM CASE ASSEMBLY (SW)
108	6021063	BOTTOM CASE ASSEMBLY (BS)
109	6020672	PLUG CASE
110	5746094	POWER CORD (BS,SA)
110	5746157	POWER CORD (E,SEV,SW)
110	5746781	POWER CORD (AU)
111	6075111	SLIDE KNOB
117	5605051	SWITCH
112	5213494	POWER TRANSFORMER (E,SEV,SA)
112	5213496	POWER TRANSFORMER (AU)
112	5213497	POWER TRANSFORMER (BS,SW)
113	5585896	VTR FRONT END (BS)
113	5586061	VTR FRONTEND (E)
113	5586061	VTR FRONT END (SW)
113	5586064	VTR FRONTEND (SEV)
113	5586068	VTR FRONTEND (SA)
113	5586069	VTR FRONTEND (AU)
114	5882291	26P CONNECTOR (BS,E,SEV)
114	5882291	26P CONNECTOR (AU,SA,SW)
115	6020102	PLUG CASE COVER
116	6208491	REAR PANEL (BS,E,SEV)
116	6208491	REAR PANEL (AU,SA,SW)
118	5602091	MAIN SWITCH
119	6773211	SWITCH COVER
120	6875631	HOLDER-TIMER DISPLAY
121	6875661	LED HOLER
122	6876051	SPACER
123	6875671	LED HOLDER
1	6794091	BUSHING
125	7487701	SHIELD CASE
126	7488591	SHIELD CAP
127	7487691	SHIELD PLATE
128	7683901	SHEET
129	6875621	COVER
901	8699410	BT BIND HEAD SCREW-3MMDX10MM (BLACK)
902	8661408	SCREW (PW3X8)
903	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
904	8699408	BT BIND HEAD SCREW-3MMDX8MM (BLACK)
905	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
906	8660606	4X6 PW SCREW
907	8691105	SCREW
909	8699410	BT BIND HEAD SCREW-3MMDX10MM (BLACK)
910	8661412	SCREW 3X12PW.B
911	8698410	SCREW 3X10BT
912	8741408	SCREW (B3X8)
913	8741408	SCREW (B3X8)
914	8711406	SCREW - 3X6 PAN HEAD SCREW
916	8711406	SCREW - 3X6 PAN HEAD SCREW
917	8741406	BIND SCREW - 3MMD X 6MM
918	8741408	SCREW (B3X8)
919	8691410	BT BIND SCREW-3MMDX10MM
FOR ACCESSARIES		
	5639851	REMOTE CONTROL BOX (E)
	5639851	REMOTE CONTROL BOX (SEV,SW,SA)
	5639853	REMOTE CONTROL BOX (AU)
	5639854	REMOTE CONTROL BOX (BS)

HITACHI

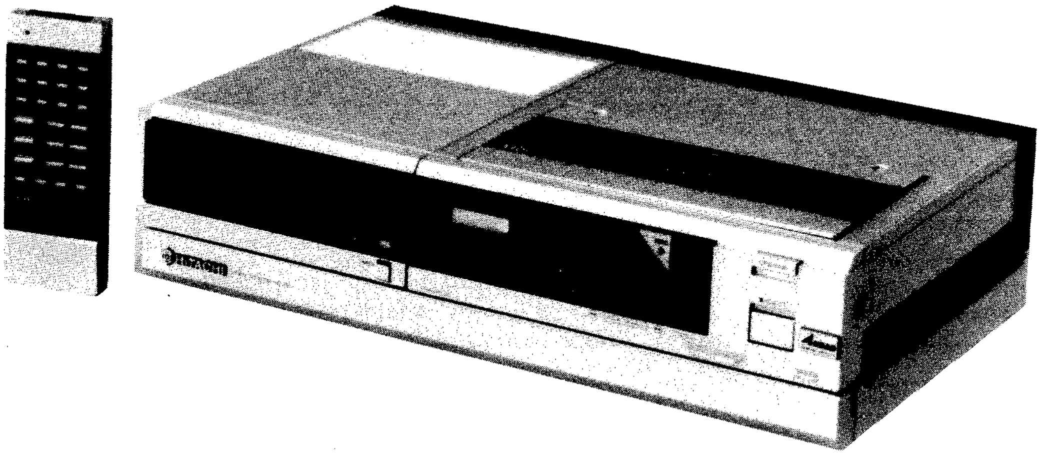
SERVICE MANUAL

TK

No. 1993G

VT-7E
VT-TU7E

Einstellungen



VHS
Dieser Videorecorder entspricht dem VHS-Format. Für problemlosen Betrieb dürfen daher nur VHS-Video-Cassetten verwendet werden.

Änderungen der Technischen Daten und des Designs vorbehalten.

Tragbarer Videorecorder/Videotuner

September 1983 **TOKAI WORKS**

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TECHNISCHE DATEN

VIDEORECORDER	VT-7E
Format:	VHS
Videocassette:	VHS-Format
Aufnahme:	Schrägspurverfahren mit zwei drehenden Bildköpfen
Bandgeschwindigkeit:	23,39 mm/sek.(SP), 11,7 mm/sek. (LP)
Bandbreite:	12,7mm
Zul. Betriebstemperatur:	0°C bis 40°C
Video:	PAL-Farb- (System B&G) & CCIR-Schwarzweißsignal, 625 Zeilen
Aufnahmedauer:	480 min. (mit Hitachi E-240 Cassette (LP))
HF-Ausgang:	UHF-Kanal 37 (einstellbar auf Kanal 30 – 39)
Video-Eingang:	0,5 ~ 2,0 Vs-s, 75 Ohm, asymmetrisch
Video-Ausgang:	1,0 Vs-s, 75 Ohm, asymmetrisch
Fremdspannungsabstand (Video):	43 dB (SP)
Fremdspannungsabstand (Audio):	43 dB (SP)
Horizontalauflösung:	Farbe 240 Zeilen
Mikrofoneingang:	-69 dB, 10 KOhm
Audio-Eingang:	-8 dB, 50 KOhm
Audio-Ausgang:	-8 dB, 600 Ohm
Audio-Frequenzbereich:	70 bis 12.000 Hz (SP)
Stromversorgung:	Gleichstrom, 12 V
Leistungsaufnahme:	4,7 W nominal (Aufnahme mit 12 V Gleichspannungsversorgung)
Abmessungen (B x H x T):	253 x 85 x 263 mm
Gewicht:	3,6 kg (mit Akku VT-BP7A)
VIDEO-TUNER	**VT-TU7E**
Videosignal:	PAL-Farb-(System B&G) & CCIR-Schwarzweißsignal, 625 Zeilen
Antennen-Eingang:	UHF 75 Ohm
Empfangskanäle:	VHF Kanäle 2 ~ 12 UHF Kanäle 21 ~ 69
HF-Ausgang:	UHF 75 Ohm
Netzspannung und-frequenz:	220 V, 50 Hz
Leistungsaufnahme:	40W
Abmessungen (B x H x T):	430 x 118 x 290 mm
Gewicht:	3,6 kg

SICHERHEITSHINWEISE

Bei der Durchführung von Wartungsarbeiten müssen die nachfolgenden Sicherheitshinweise beachtet werden.

1. Da viele Bestandteile dieses Gerätes Spezielle sicherheitsaufgaben aufweisen, nur Hitachi Original-Ersatzteile verwenden. Besonders kritische Teile im Netzteil dürfen nicht durch Teile anderer Hersteller ersetzt werden. Kritische Teile sind in den Schaltplänen und in den Leiterplatten-Diagrammen mit dem Symbol ⚠ gekennzeichnet.
2. Bevor ein repariertes Gerät wieder an den Kunden ausgeliefert wird, muß der Wartungstechniker das Gerät nochmals gründlich kontrollieren, um optimale Betriebssicherheit zu gewährleisten und elektrische Schläge zu verhindern.

LISTE DER UNTERSCHIEDE

Unterschied	VT-7E	VT-6800E
MERKMALE	**(VT-7E/VT-TU7E)**	**(VT-6800E/VT-TU68E)**
FERNBEDIENUNG	INFRAROT-FERNBEDIENUNG, FERNBEDIENUNG ÜBER KAMERA MÖGLICH	INFRAROT-FERNBEDIENUNG, FERNBEDIENUNG ÜBER KAMERA MÖGLICH
TIMER-AUFNAHMEPROGRAMME	7 PROGRAMM IN 2 WOCHEN	8 PROGRAMME IN 3 WOCHEN
AKKU	NICD (3 KLEMMEN)	NICD (KABEL MIT STECKER)
AKKU-SPANNUNGSANZEIGE	FLÜSSIGKRISTALLANZEIGE "BATT"	ZEIGER
TRICK-WIEDERGABE	MÖGLICH BEI SP/LP	MÖGLICH BEI SP/LP
STANDBILD	HALBBILD	VOLLBILD
ZEITLUPE	HALBBILD-ZEITLUPE DURCH INTERMITTIERENDEN ANTRIEB	VOLLBILD-ZEITLUPE DURCH INTERMITTIERENDEN ANTRIEB
SUCHLAUF-RAUSCHBALKENUNTERDRÜCKUNG	VORHANDEN FÜR SP/LP-SUCHLAUF	NICHT VORHANDEN (EP-SUCHLAUF ÜBER FERNBEDIENUNG)
RÜKLAUFWIEDERGABE/ EINZELBILDWIEDERGABE	VORHANDEN	NICHT VORHANDEN
WICKELTELLERANTRIEB	WICKELTELLER-MOTOR	CAPSTAN- & WICKELTELLER-MOTOR
BANDZÄHLWERK	4-STELLIGE FLÜSSIGKRISTALLANZEIGE	4-STELLIGE MECHANISCHE ANZEIGE
AUFNAHMEZEIT-ANZEIGE	4-STELLIGE FLÜSSIGKRISTALLANZEIGE (BANDZÄHLWERK)	NICHT VORHANDEN
AUFNAHME-VERRIEGELUNGSFUNKTION	VORHANDEN (BEI KAMERA-AUFNAHME IST STOPP NUR NACH AUFNAHMEPAUSE MÖGLICH)	NICHT VORHANDEN
STEREO-AUFNAHME UND-WIEDERGABE	VORHANDEN	NICHT VORHANDEN
SOFORTAUFNAHME IN INTERVALLEN	VORHANDEN	NICHT VORHANDEN
AUFNAHME-KONTROLLFUNKTION	VORHANDEN (IN SYSTEMKONTROLLE)	VORHANDEN (IN SYSTEMKONTROLLE)
BANDLAUFWERK	**(VT-7E)**	**(VT-6800E)**
BILDKÖPFE	4 KÖPFE 36 µm/36 µm (SP-AUFNAHME/WIEDERGABE) (LP-AUFNAHME/WIEDERGABE) (LP-TRICK-WIEDERGABE) 75 µm/75 µm (SP-TRICK-WIEDERGABE)	2 KÖPFE 60 µm/75 µm
MOTOREN	4 MOTOREN DREIPHASENMOTOR FÜR BILDKOPF-TROMMEL-DIRETKTANTRIEB, DREIPHASENMOTOR FÜR CAPSTAN-DIREKTANTRIEB, GLEICHSTROM-FÄDELMOTOR, GLEICHSTROM-WICKELTELLERMOTOR	4 MOTOREN DREIPHASENMOTOR FÜR BILDKOPF-TROMMEL-DIREKTANTRIEB, DREIPHASENMOTOR FÜR CAPSTAN-DIREKTANTRIEB, GLEICHSTROM-FÄDELMOTOR, GLEICHSTROM-WICKELTELLERMOTOR
	(VT-TU7E)	**(VT-TU68E)**
KANALWAHL	SPANNUNGSGEREGELTER SYNTHESIZER-TUNER FÜR 80 KANÄLE	12 KANÄLE (VOREINGESTELLT)
TIMER-SCHALTER	VORHANDEN (NICHT EINRASTBARER TASTENSCHALTER)	VORHANDEN (NICHT EINRASTBARER TASTENSCHALTER)
ZEITEINSTELLTASTEN	3 TASTEN MIT ZIFFERNSCHALTUNG	12 TASTEN FÜR ZIFFERNDIREKTEINGABE
IRT-TASTE FÜR SOFORTAUFNAHME	VORHANDEN	NICHT VORHANDEN

ABGLEICH DER ELEKTRISCHEN SCHALTKREISE

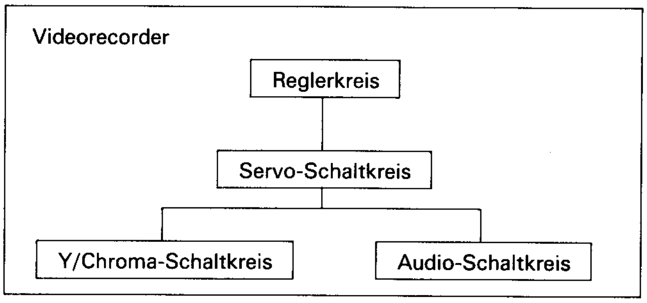
VT-7E (VIDEORECORDER)

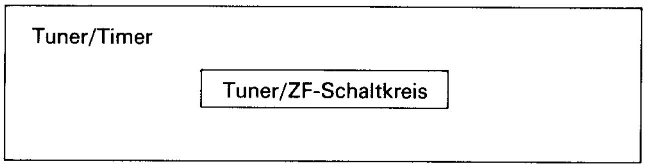
Für Abgleich der Schaltkreise erforderliche Prüfgeräte, Vorrichtungen und Testbänder

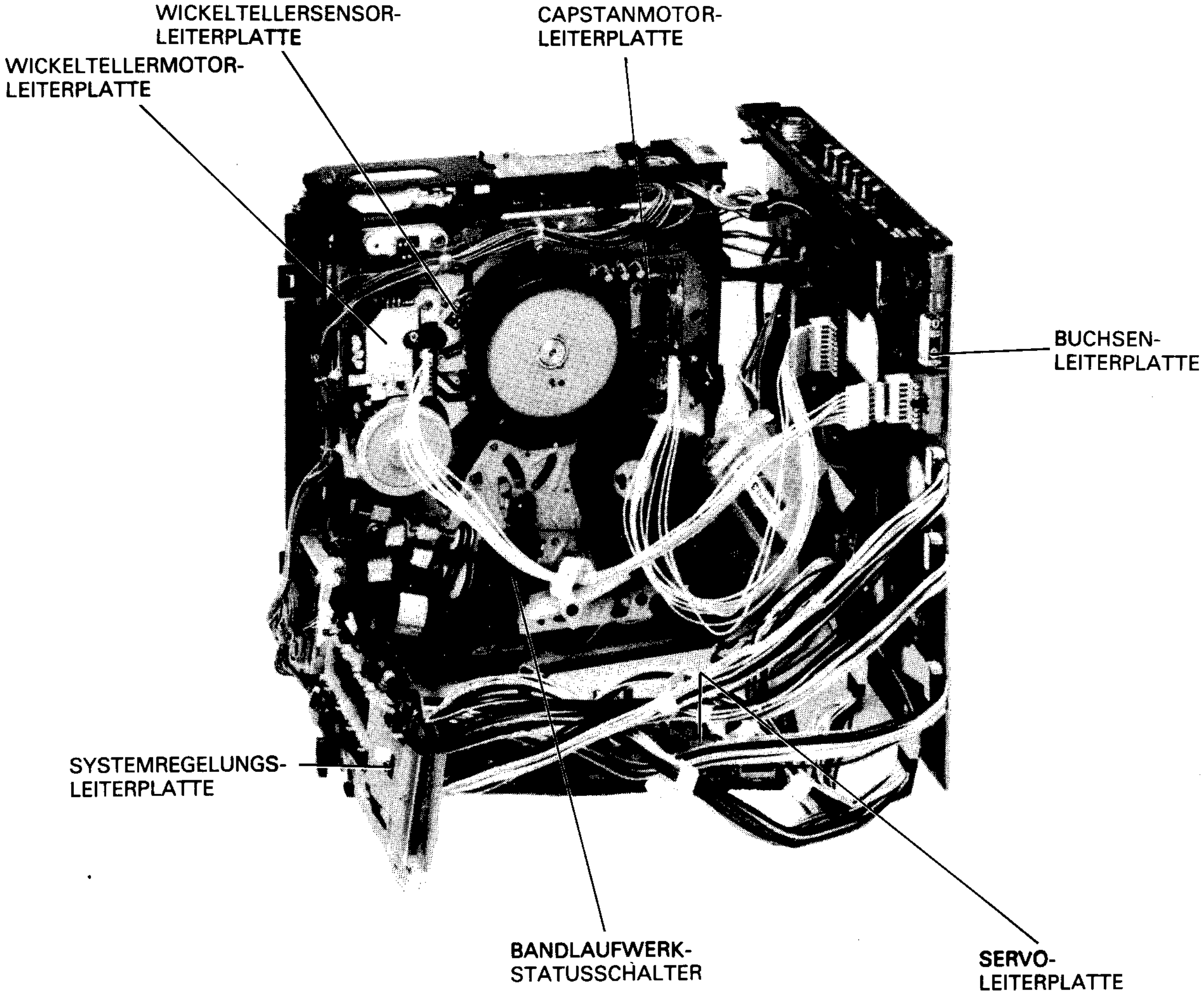
1) Farbfernsehgerät
2) Oszilloskop
3) Röhrenvoltmeter
4) Farbbalken-Signalgenerator
5) Gleichstromversorgung
6) Gleichstromvoltmeter
7) Abgleichband
8) Leerband

Abgleichreihenfolge

Die Abgleiche sind in der nachfolgend gezeigten Reihenfolge auszuführen.


Videorecorder
Reglerkreis
Servo-Schaltkreis
Y/Chroma-Schaltkreis
Audio-Schaltkreis


Tuner/Timer
Tuner/ZF-Schaltkreis

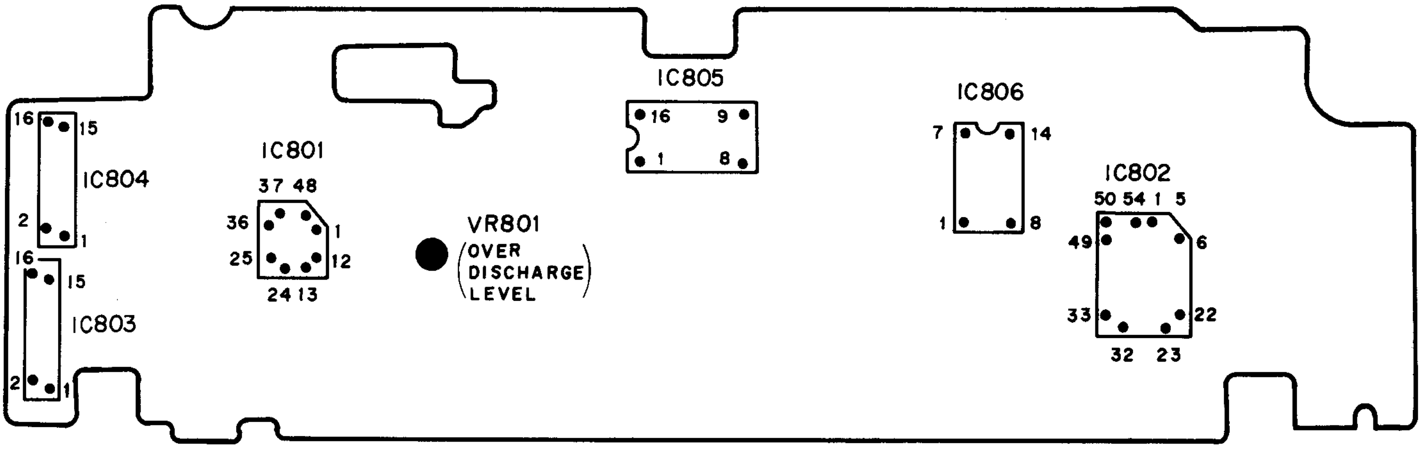

WICKELTELLERSENSOR-LEITERPLATTE
CAPSTANMOTOR-LEITERPLATTE
WICKELTELLERMOTOR-LEITERPLATTE
BUCHSEN-LEITERPLATTE
SYSTEMREGELUNGS-LEITERPLATTE
BANDLAUFWERK-STATUSSCHALTER
SERVO-LEITERPLATTE

Tragbarer Videorecorder mit ausgeklappter Buchsen-Leiterplatte

Hinweis: Der Videorecorder kann zerlegt werden, wenn die auf der vorhergehenden Seite gezeigten Stecker verwendet werden. Die Servo-Leiterplatte ist dabei nicht von der Buchsen-Leiterplatte abzunehmen.

ABGLEICH DER SYSTEMREGELUNG (Systemregelungs-Leiterplatte)

Position der Abgleichteile


IC804
16
15
2
1
IC803
16
15
2
1
IC801
37 48
36
1
25
12
24 13
VR801
OVER DISCHARGE LEVEL
IC805
16
9
1
8
IC806
7
14
1
8
IC802
50 54 1 5
49
6
33
22
32 23

SYSTEMREGELUNGS-LEITERPLATTE (BESTÜCKUNGSSEITE)

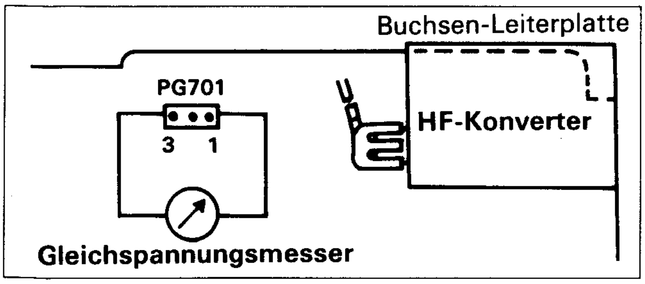
1. Abgleich der zul. Entladepegels

Den Akku-Entladedetektorpegel durch diesen Abgleich auf 11,5V einstellen. Wenn die Akku-Spannung auf 10,3 ~ 10,8V absinkt, wird der Videorecorder automatisch ausgeschaltet, um einen Beschädigung des Akkus aufgrund übermäßiger Entladung zu vermeiden.
Wenn dieser Abgleich nicht richtig ausgeführt werden kann und der Pegel weniger als 11,5V beträgt, sinkt auch der Entladedetektorpegel ab, so daß die Lebensdauer des Akkus verkürzt wird. Falls der Pegel dagegen auf über 11,5V eingestellt wird, wird die Nutzdauer nach dem Aufladen verkürzt.

Anschluß der Prüfgeräte

Einen Gleichspannungsmesser und die Gleichstromversorgung wie folgt an PG701 der Buchsen-Leiterplatte anschließen.

Anschluß: (+) an PG701 Stift 3
(–) an PG701 Stift 2


Buchsen-Leiterplatte
PG701
3 1
HF-Konverter
Gleichspannungsmesser

STATUS DES VIDEORECORDERS: Stoppfunktion
ABGLEICHPOSITION: VR801 (OVER DISCHARGE LEVEL)

Abgleichvorgang

1) Den VR801 bis zum Anschlag im Uhrzeigersinn drehen.
2) Die Spannung der Gleichstromversorgung auf 11,6V einstellen.
3) Den VR801 gegen den Uhrzeigersinn drehen, bis "BATT" im Bandzählwerk auf der Systemregelungs-Leiterplatte angezeigt wird.
4) Nach Beendigung dieses Abgleiches, die Gleichstromversorgung reduzieren, um sicherzustellen, daß der Videorecorder bei einer Spannung von 10,3 ~ 10,8V automatisch abschaltet.

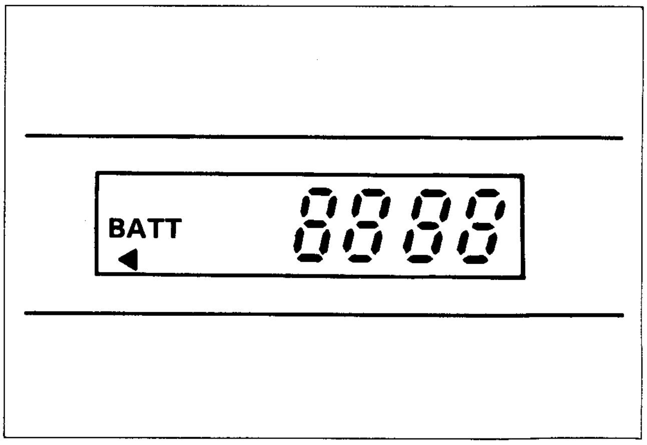


Abb. 1 Flüssigkristallanzeige

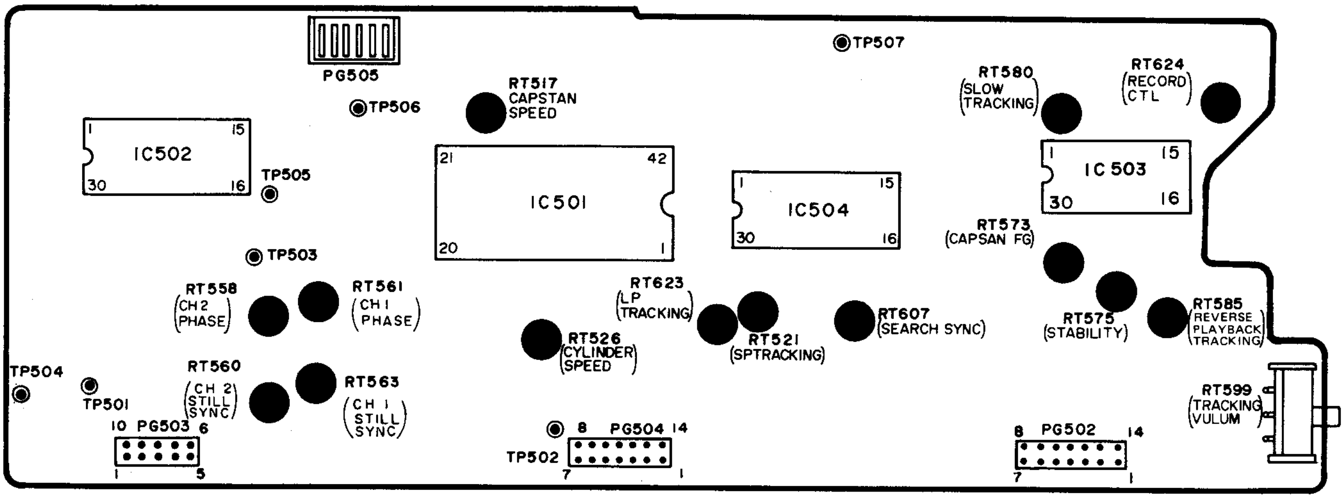
ABGLEICH DES SERVO-SCHALTKREISES (Servo-, Buchsen-, Luminanz/Y/Chroma-Leiterplatte)

Position der Abgleichteile

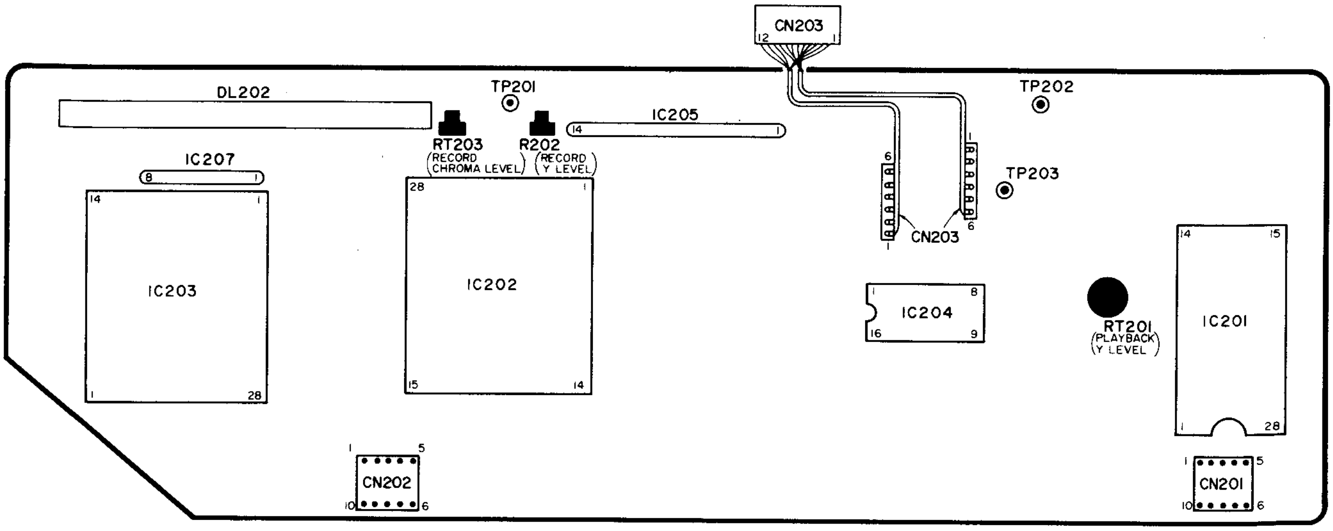
[Die Buchsen-Leiterplatte ist auf Seite 11 beschrieben.]

PG505
(TESTSTECKER)

1	Bildkopftrommel-Drehzahl (CYL SPEED)
2	Capstan-Drehzahl (APST. SPEED)
3	Bildkopftrommel-Freilauf (CYL FREE RUN)
4	5V
5	Capstan-Frequenzgenerator (CAPST. FG)
6	Capstan-Freilauf (C. FREE RUN)


PG505
TP507
RT517 CAPSTAN SPEED
TP506
RT580 (SLOW TRACKING)
RT624 (RECORD CTL)
IC502
IC501
IC504
IC503
TP505
TP503
RT573 (CAPSAN FG)
RT558 (CH2 PHASE)
RT561 (CH1 PHASE)
RT623 (LP TRACKING)
RT526 (CYLINDER SPEED)
RT521 (SPTRACKING)
RT607 (SEARCH SYNC)
RT575 (STABILITY)
RT585 (REVERSE PLAYBACK TRACKING)
TP504
TP501
RT560 (CH 2 STILL SYNC)
RT563 (CH 1 STILL SYNC)
10 PG503 6
TP502
8 PG504 14
8 PG502 14
RT599 (TRACKING VULUM)

SERVO-LEITERPLATTE (LEITERBAHNSEITE)


CN203
DL202
TP201
IC205
TP202
RT203 (RECORD CHROMA LEVEL)
R202 (RECORD Y LEVEL)
IC207
TP203
CN203
IC203
IC202
IC204
RT201 (PLAYBACK Y LEVEL)
IC201
CN202
CN201

Y/CHROMA-LEITERPLATTE (LEITERBAHNSEITE)

1. Bildkopftrommel-Drehzahleinstellung

Dieser Abgleich verriegelt den Bildkopftrommel-Servo mit den Systemsignalen und hält die Bildkopftrommel-Drehzahl auf konstanten 1.500/min.
Wenn dieser Abgleich nicht richtig ausgeführt werden kann, kann es zu horizontalen Bildschwankungen oder übermäßigen Rauschstörungen kommen.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und das Farbbalkensignal einspeisen.
2) Ein Oszilloskop an den PG505 Stift 1 anschließen.

Status des Videorecorders

Den Geschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten.

Abgleichposition

RT526 (CYLINDER SPEED)

Abgleichvorgang

1) Den PG505 Stift 3 mit dem PG505 Stift 4 kurzschließen.
2) RT526 so abgleichen, daß der der Sägezahnwelle überlagerte Abtastimpuls stillsteht oder sehr langsam bewegt wird.
3) Den Kurzschluß zwischen PG505 Stift 3 und PG505 Stift 4 (kurzgeschlossen in Punkt 1) wieder lösen. Darauf achten, daß der Abtastimpuls an der Abfallflanke der Sägezahnwelle stillsteht.

2. Capstan-Drehzahlregelung

Dieser Abgleich verriegelt den Capstan-Servo mit den Systemsignalen und hält die Bandgeschwindigkeit auf einem konstanten Wert.

SP: 2,34 cm/sek.
LP: 1,17 cm/sek.

Wenn dieser Abgleich nicht richtig ausgeführt werden kann, kommt es zu vertikalen Instabilitäten des Bildes bzw. zu übermäßigen Rauschstörungen.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Ein Oszilloskop an den PG505 Stift 2 anschließen.

Status des Videorecorders

Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten.

Abgleichposition

RT517 (CAPSTAN SPEED)

Abgleichvorgang

1) Den PG505 Stift 4 und den PG505 Stift 6 kurzschließen.
2) RT517 so abgleichen, daß der der Sägezahnwelle überlagerte Abtastimpuls stillsteht oder sehr langsam bewegt wird.
3) Den Kurzschluß zwischen dem PG505 Stift 4 und PG505 Stift 6 wieder lösen (kurzgeschlossen in Punkt 1).
   Darauf achten, daß der Abtastimpuls an der Anstiegsflanke der Sägezahnwelle stillsteht.

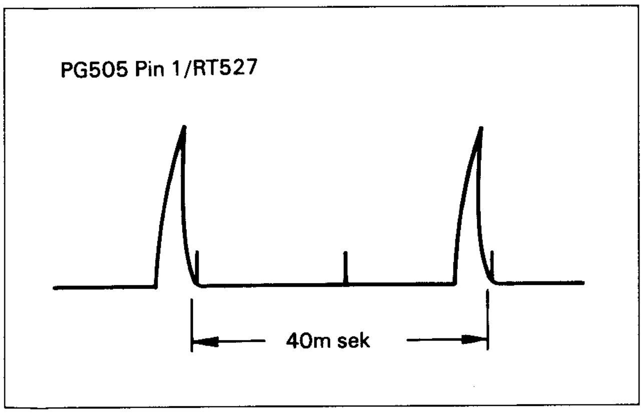


Abb. 2 Bildkopftrommel-Drehzahl

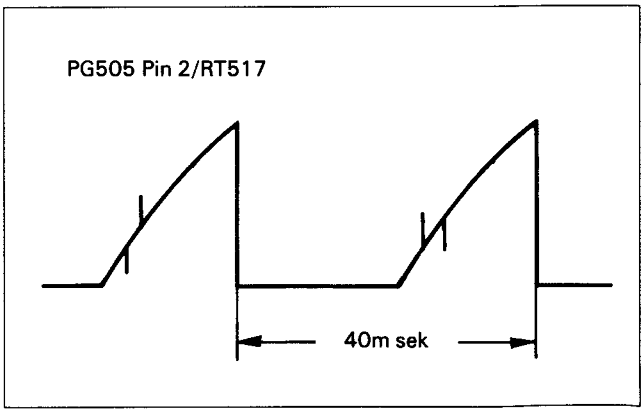


Abb. 3 Capstan-Drehzahl

3. Kopfwechselpunkt

CH-1 MM und CH-2 MM des Bildkopftrommel-Tachoimpuls-Schaltkreises bestimmen den Kopfwechselpunkt während der Wiedergabe. Ein Fehlabgleich von CH-1 MM und CH-2 MM des Bildkopftrommel-Tachoimpuls-Schaltkreises kann zu Kopfwechselrauschen im Bild und/oder vertikalem Jitter führen.

Anschluß der Prüfgeräte

1) Die CH-1 Klemme des Oszilloskops an TP202 (SW 25 Hz Signalausgang) der Y/Chroma-Leiterplatte anschließen.
2) Die CH-2 Klemme des Oszilloskops an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen.

Status des Videorecorders

Wiedergabe des Abgleichbandes.

Abgleichposition

RT561 (CH-1 PHASE)
RT558 (CH-2 PHASE)

Abgleichvorgang

1) CH-1 synchronisieren und die Synchronsteilheit auf (–) einstellen.
2) RT561 so abgleichen, daß die vordere Schwarzschulter der Vertikalsynchronisierung um 6,5 ±0,5 Horizontalzeilen vor der Abfallflanke des SW 25 Hz Signals liegt.
3) Die Synchronsteilheit auf (+) einstellen.
4) RT558 so abgleichen, daß die vordere Schwarzschulter der Vertikalsynchronisierung um 6,5 ±0,5 Horizontalzeilen vor den Anstiegsflanke des SW 25 Hz Signals liegt.

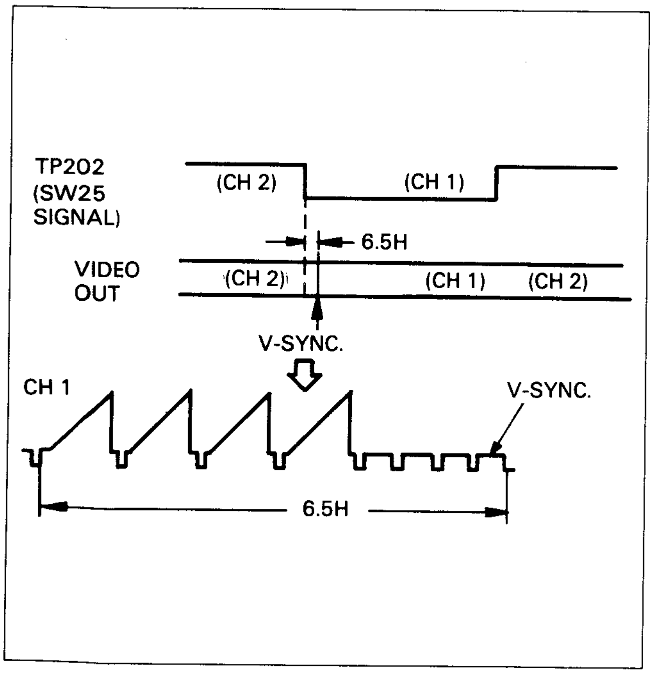


Abb. 4 Kopfwechselpunkt

4. Aufnahme-Steuerspur (CTL)

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Die CH-1 Klemme des Oszilloskops an TP202 (SW 25 Hz Signalausgang) der Y/Chroma-Leiterplatte anschließen.
3) Die CH-2 Klemme des Oszilloskops an TP507 (Steuerspursignal CTL) der Servo-Leiterplatte anschließen.

Status des Videorecorders

Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten.

Abgleichposition

RT624 (RECORD CTL)

Abgleichvorgang

RT624 so abgleichen, daß der CTL-Impuls um 420 µsek. vor der Anstiegsflanke des SW 25 Hz Signals liegt.

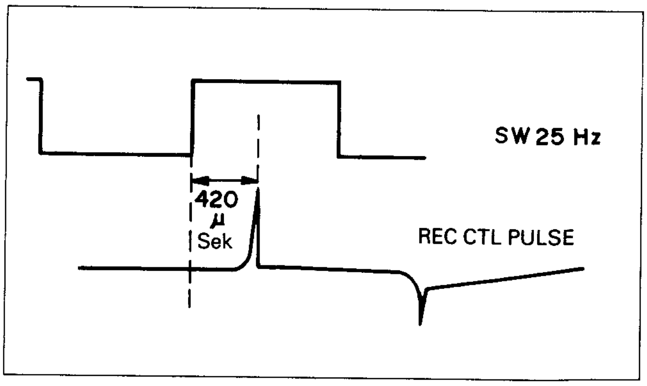


Abb. 5 Aufnahme-Steuerspursignal (CTL)

5. Spurlagenregelung

Dieser Abgleich dient für richtige Spurlage während der Wiedergabe für ein Band, das auf diesem Videorecorder bespielt wurde. Wenn dieser Abgleich nicht richtig ausgeführt wird, dann kommt es bei in seiner mittleren Raststellung befindlichem Spurlagenregler zu einem verrauschten Bild bzw. die Rauschstörungen können durch Verstellen des Spurlagenreglers nicht vollständig eliminiert werden.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Die CH-1 Klemme des Oszilloskops an TP202 (SW 25 Hz) anschließen.
3) Die CH-2 Klemme des Oszilloskops an PG505 Stift 2 anschließen.
4) Den Spurlagenregler in seine mittlere Raststellung bringen.

Spurlagen-Voreinstellung für SP-Modus

Status des Videorecorders

1) Den Bandgeschwindigkeitswahlschaler auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß ein ausreichend langes Bandstück für die Wiedergabe zur Verfügung steht.)
2) Das Band zurückspulen und das aufgenommene Signal wiedergeben.

Abgleichposition

RT521 (SP TRACKING)

Abgleichvorgang

1) Die Spurlagen-Voreinstellung (RT521) für den SP-Modus so vornehmen, daß die Anstiegsflanke des CTL-Impulses mit der V.SYNC Komponente des Videosignals übereinstimmt.

Spurlagen-Voreinstellung für LP-Modus

Status des Videorecorders

1) Den Bandgeschwindigkeitswahlschalter auf Position LP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß ein ausreichend langes Bandstück für die Wiedergabe zur Verfügung steht.
2) Das Band zurückspulen und das aufgenommene Signal wiedergeben.

Abgleichposition

RT623 (LP TRACKING)

Abgleichvorgang

1) Die Spurlagen-Voreinstellung (RT623) für den LP-modus so vornehmen, daß die Anstiegsflanke des CTL-Impulses mit der V. SYNC Komponente des Videosignals übereinstimmt.

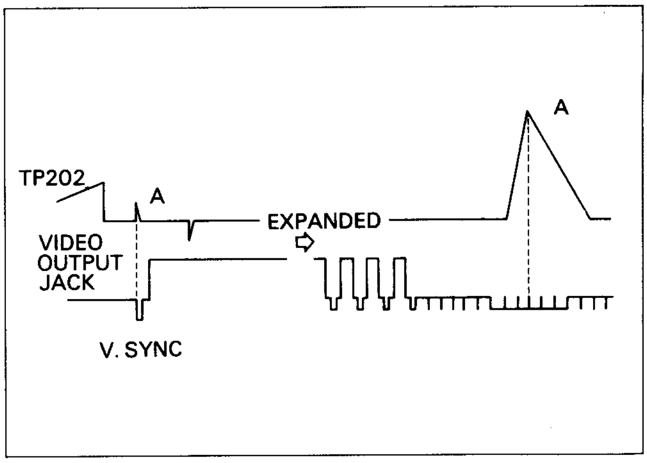


Abb. 6 Spurlagen-Voreinstellung

6. Capstan-Frequenzgenerator

Dieser Abgleich stellt die Häufigkeit des Capstan-Frequenzgeneratorimpulses (CFG) auf den vorgeschriebenen Wert ein, so daß der Videorecorder auch im SP-Modus normal arbeitet.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Das Oszilloskop an den PG505 Stift 5 anschließen.

Status des Videorecorders

Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten.

Abgleichposition

RT573 (CAPSTAN FG)

Abgleichvorgang

1) RT573 so abgleichen, daß die Häufigkeit der Wellenform auf 50%/50% eingestellt ist.

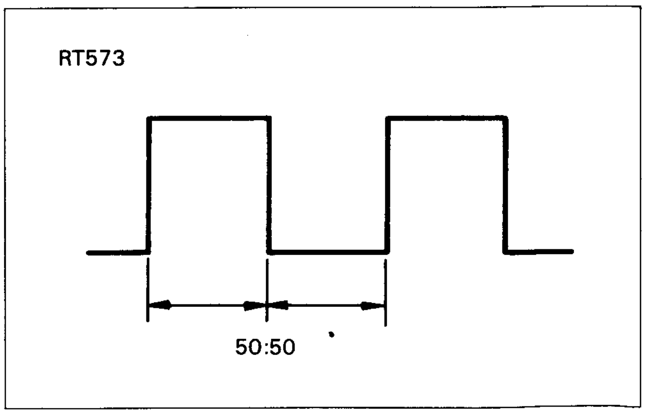


Abb. 7 Capstan-Frequenzgenerator

7. Suchlauf-Synchronisierung

Dieser Abgleich sorgt dafür, daß die Frequenz des horizontalen Synchronsignals während der Suchlauffunktion in Vor-/Rücklaufrichtung gleich wie während der Wiedergabefunktion ist. Falls dieser Abgleich nicht richtig ausgeführt wird, kommt es zu Konvergenzfehlern. Dieser Abgleich ist während der Standbild-Pausefunktion auszuführen.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und das Farbbalkensignal einspeisen.
2) Das Oszilloskop an die Video-Ausgangsbuchse anschließen.

Abgleichposition
RT607 (SEARCH SYNC)

Abgleichvorgang

1) Eine 1H Periode des Videosignals am Oszilloskop erhalten, indem eine Verzögerung oder eine Vergrößerung der horizontalen Abtastung vorgenommen wird. (Da die Wellenformen der Standbild-Pausefunktion und der Wiedergabefunktion nicht gleichzeitig beobachtet werden können, das horizontale Synchronsignal (A) während der Wiedergabe an eine leicht zu beobachtende Position verlegen.)
2) Den Videorecorder auf die Standbild-Pausefunktion schalten und RT607 abgleichen, um die Phasendrift (zwischen A und A') des horizontalen Synchronsignals während der Wiedergabe- und Standbild-Pausefunktion aufzuheben.

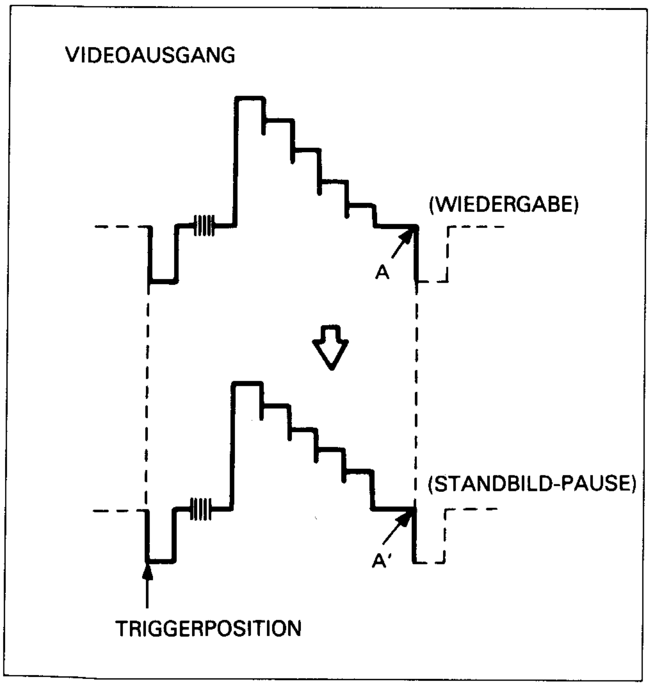


Abb. 8 Suchlauf-Synchronisierung

8. Rücklaufwiedergabe-Spurlagenregelung

Dieser Abgleich sorgt für richtige Spurlage bei der Rücklaufwiedergabe für ein Band, das auf diesem Videorecorder bespielt wurde. Wenn dieser Abgleich nicht richtig ausgeführt wird, erscheint während der Rücklaufwiedergabe ein Rauschband in Bildmitte.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Den HF-Ausgang mit der Fernsehantennenklemme (TV AERIAL) verbinden.

Status des Videorecorders

1) Eine Leercassette einsetzen und den Videorecorder auf die SP-Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß für die Rücklaufwiedergabe ein ausreichend langes Bandstück zur Verfügung steht.)
2) Das aufgenommene Signal im Rücklauf wiedergeben.

Abgleichposition
RT585 (REVERSE PLAYBACK TRACKING)

Abgleichvorgang
RT585 so abgleichen, daß das in Bildmitte erscheinende Rauschband an den oberen oder unteren Bildrand verschoben wird.

9. Zeitlupen-Spurlagenregelung

Dieser Abgleich sorgt für richtige Spurlage bei der Zeitlupen-Wiedergabe für ein auf diesem Videorecorder bespieltes Band. Wenn dieser Abgleich nicht richtig ausgeführt wird, kommt es zu einem Rauschband in Bildmitte während der Zeitlupen-Wiedergabe.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Einen Fernsehempfänger (oder Monitor) an die VHF-Ausgangsbuchse an der Rückseite des Tuner-Moduls anschließen.

Status des Videorecorders

1) Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß während der Wiedergabe ein ausreichend langes Bandstück für den Abgleich zur Verfügung steht.)
2) Das Band zurückspulen und das aufgenommene Signal in der Zeitlupen-Wiedergabefunktion wiedergeben.

Abgleichposition
RT580 (SLOW TRACKING)

Abgleichvorgang
RT580 so abgleichen, daß das in Bildmitte erscheinende Rauschband an den oberen oder unteren Bildrand verschoben wird, so daß es nicht mehr störend in Erscheinung tritt.

10. Stabilitätsabgleich

Dieser Abgleich vermindert laterale Bildschwankungen, die während der Zeitlupen-Wiedergabe durch den intermittierenden Betrieb verursacht werden. Falls dieser Abgleich nicht richtig ausgeführt wird, kommt es zu lateralen Bildschwankungen.
Dieser Abgleich ist nach Beendigung des Capstan-Zeitlupen-Abgleichs durchzuführen.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Einen Fernsehempfänger (oder Monitor) an die VHF-Ausgangsbuchse an der Rückseite des Tuner-Moduls anschließen.

Status des Videorecorderes

1) Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß während der Wiedergabe ein ausreichend langes Bandstück für den Abgleich zur Verfügung steht.
2) Das Band zurückspulen und das aufgezeichnete Signal in der Zeitlupen-Wiedergabe wiedergeben.

Abgleichposition
RT575 (STABILITY)

Abgleichvorgang
RT575 so abgleichen, daß die lateralen Bildschwankungen auf ein Minimum begrenzt werden.

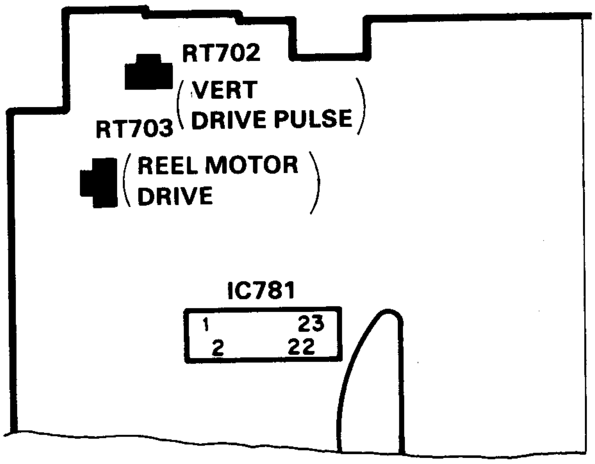
11. Bildaustastimpuls

Während der Trick-Wiedergabe wird mit diesem Abgleich der Bildaustastimpuls so eingestellt, daß ein stabiles Bild erhalten wird. Falls dieser Abgleich nicht richtig ausgeführt wird, kommt es zu Bildschwankungen während der Trick-Wiedergabe.

Anschluß der Prüfgeräte

1) Die CH-1 Klemme des Oszilloskops an TP202 (SW 25 Hz Signalausgang) der Y/Chroma-Leiterplatte anschließen.
2) Die CH-2 Klemme des Oszilloskops an den IC504 Stift 15 anschließen.

Position der Abgleichteile auf der Buchsen-Leiterplatte



Buchsen-Leiterplatte (Bestückungsseite)

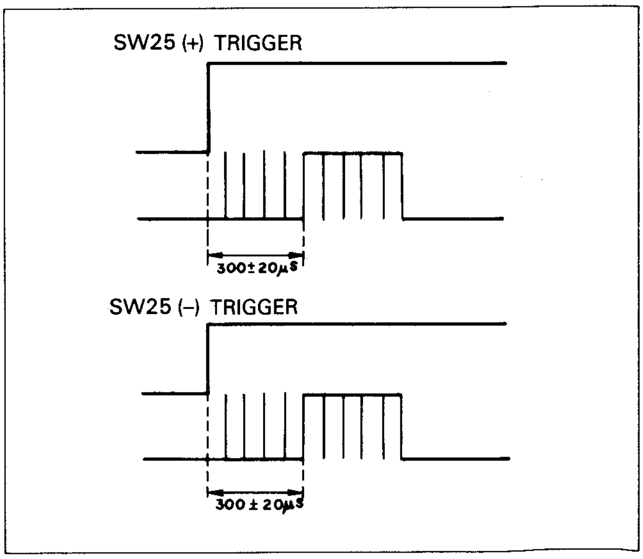
Status des Videorecorders

1) Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß während der Wiedergabe ein für den Abgleich ausreichend langes Bandstück zur Verfügung steht.)
2) Das Band zurückspulen und das aufgezeichnete Signal in der Standbild-Wiedergabefunktion wiedergeben.

Abgleichposition
RT563 (CH-1 STILL SYNC)
RT560 (CH-2 STILL SYNC)
RT702 (VERT. DRIVE PULSE)

Abgleichvorgang

1) RT563 so abgleichen, daß die vordere Schwarzschulter des vertikalen Synchronsignals um 300 ±20 µsek. Horizontalzeilen vor der Anstiegsflanke des SW 25 Hz Signals liegt.
2) RT560 so abgleichen, daß die vordere Schwarzschulter des vertikalen Synchronsignals um 300 ±20 µsek. Horizontalzeilen vor der Abfallflanke des SW 25 Hz Signals liegt.
3) Darauf achten, daß das Bild frei von vertikalem Jitter ist. Falls vertikaler Jitter vorhanden ist, RT702 auf der Buchsen-Leiterplatte abgleichen, um den Jitter zu eliminieren.



12. Wickelteller-Motortreiber

Dieser Abgleich dient für die Einstellung des Drehmoments des Wickeltellermotors. Falls dieser Abgleich nicht richtig ausgeführt wird, kommt es bei zu geringem Drehmoment zu Bandschlaufen, wogegen bei zu hohem Drehmoment instabiler Bandauf verursacht wird.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Ein Röhrenvoltmeter an CN707 Stift 6 anschließen.

Status des Videorecorders

1) Ein bespieltes Band in der Rücklaufwiedergabefunktion wiedergeben.

Abgleichposition

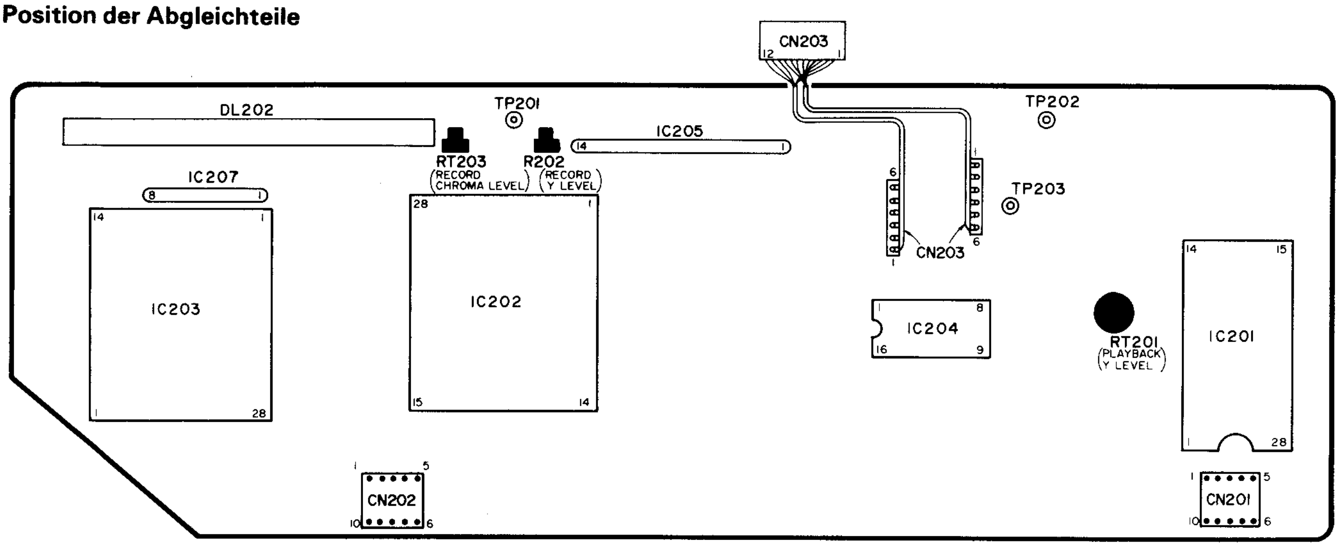
RT703 (REEL MOTOR DRIVE)

Abgleichvorgang

Den Wickelteller-Motortreiber (RT703) auf eine Spannung von 3,7 ± 0,1 V einstellen.

ABGLEICH DES Y/CHROMA-SCHALTKREISES (Y/Chroma-Leiterplatte)

Position der Abgleichteile



Y/CHROMA-LEITERPLATTE (LEITERBAHNSEITE)

1. Aufnahme-Chroma und -Y-Pegel

Aufnahme-Chroma-Pegel

Dieser Abgleich sorgt für optimalen Farbpegel während der Aufnahme.

Falls dieser Abgleich nicht richtig ausgeführt wird und der Pegel zu hoch eingestellt ist, kommt es zu Parallelogrammverzerrungen am Bildschirm, wogegen bei zu nieder eingestelltem Pegel der Fremdspannungsabstand absinkt und so zu Farbfehlern führt.

Aufnahme-Y-Pegel

Dieser Abgleich sorgt für optimalen Aufnahme-Y-Pegel.

Falls dieser Abgleich nicht richtig ausgeführt wird und der Pegel zu hoch ist, dann kann es zu einer Invertierung der Schwarzweißsignale bzw. zu einer Verschlechterung des Fremdspannungsabstandes kommen, wogegen bei einem zu niedrigen Pegel der Fremdspannungsabstand verschlechtert wird.

Aufnahme-Y-Pegel

Pegel
140 ± 10 mVs-s

Aufnahme-Chroma-Pegel

Kopftrommel-Markierung	Pegel
Keine Markierung	25 ± 3 mVs-s
1	30 ± 3 mVs-s
2	35 ± 3 mVs-s
3	40 ± 3 mVs-s
4	40 ± 3 mVs-s

Tabelle 1

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Ein Oszilloskop an TP203 anschließen.

Status des Videorecorders

Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten.

Abgleichposition

RT203 (RECORD CHROMA LEVEL)
RT202 (RECORD Y LEVEL)

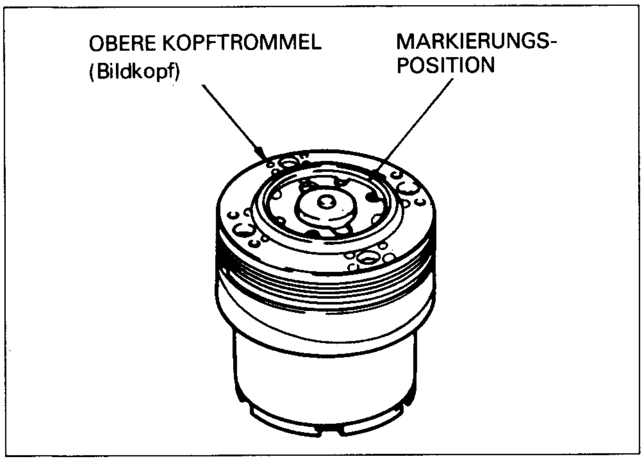


Abb. 9 Kopftrommel-Markierung

Abgleichvorgang

1) RT202 bis zum Anschlag gegen den Uhrzeigersinn drehen.
2) RT203 so abgleichen, daß der maximale Chroma-Pegel dem der Markierung entsprechenden Wert entspricht.
3) RT202 abgleichen, so daß der Synchronboden 140 ± 10 mVs-s beträgt.

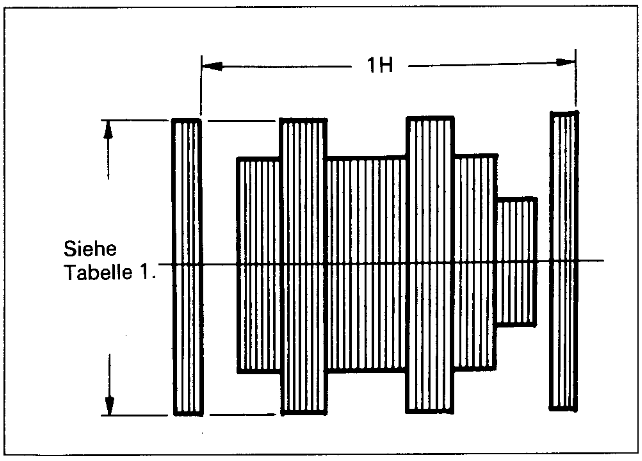


Abb. 10 Aufnahme-Chroma-Pegel

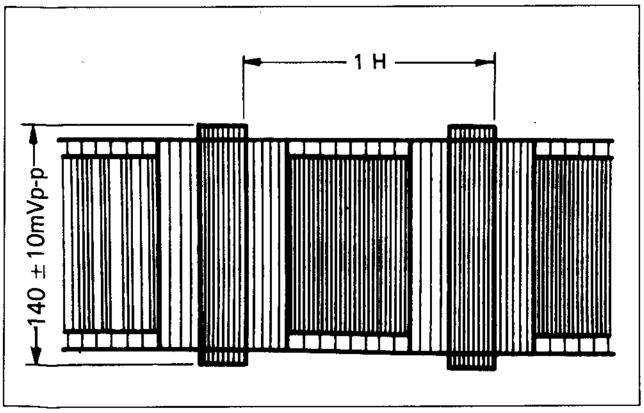


Abb. 11 Aufnahme-Y-Pegel

2. Wiedergabe-Y-Pegel

Dieser Abgleich sorgt für optimalen Wiedergabe-Y-Pegel.

Anschluß der Prüfgeräte

1) Einen Farbbalkengenerator an die an der Geräteseite angeordnete Video-Eingangsbuchse anschließen und ein Farbbalkensignal einspeisen.
2) Ein Oszilloskop an die Video-Ausgangsbuchse an der Geräteseite anschließen.

Status des Videorecorders

1) Den Bandgeschwindigkeitswahlschalter auf Position SP stellen, eine Leercassette einsetzen und den Videorecorder auf die Aufnahmefunktion schalten. (Die Aufnahme so lange ausführen, daß bei der Wiedergabe ein für den Abgleich ausreichend langes Bandstück zur Verfügung steht.
2) Das Band zurückspulen und das aufgezeichnete Signal wiedergeben.

Abgleichposition

RT201 (PLAYBACK LEVEL)

Abgleichvorgang

RT201 so abgleichen, daß der Video-Ausgangspegel (nicht abgeschlossen) 2,0 ± 0,1 Vs-s beträgt.

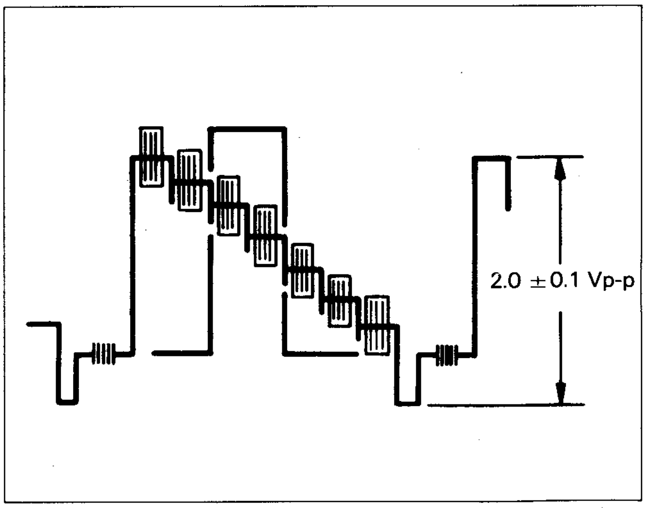
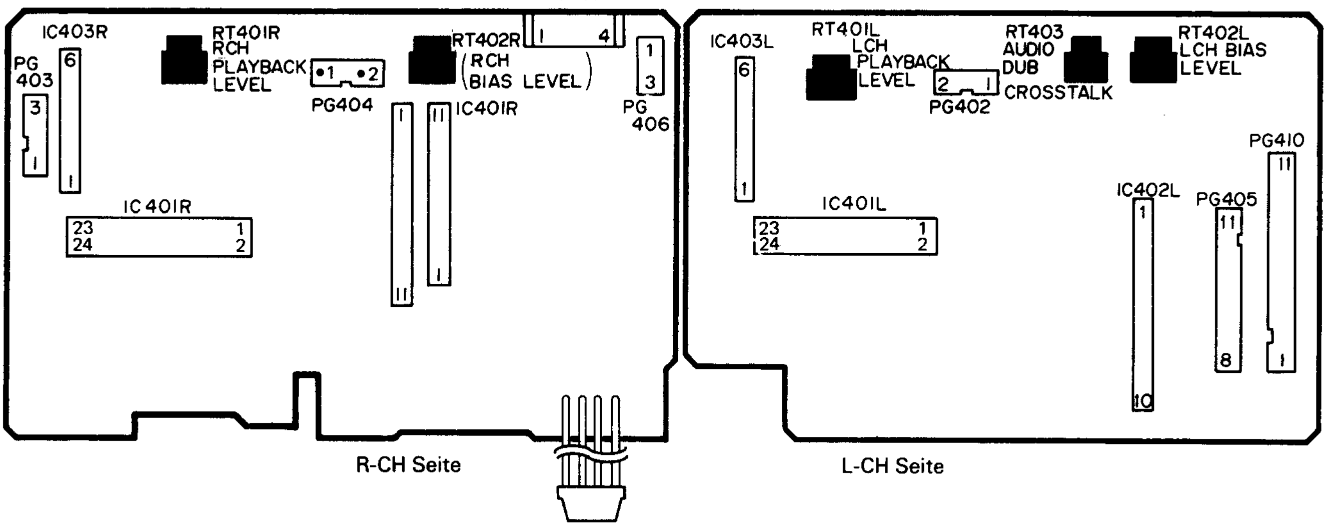


Abb. 12 Wiedergabe-Y-Pegel

ABGLEICH DES AUDIO-SCHALTKREISES (Audio-Leiterplatte)

Position der Abgleichteile


PG407
IC403R
PG 403
RT401R RCH PLAYBACK LEVEL
PG404
RT402R (RCH BIAS LEVEL)
IC401R
PG 406
IC401R
R-CH Seite
CN401
IC403L
RT401L LCH PLAYBACK LEVEL
PG402
RT403 AUDIO DUB CROSSTALK
RT402L LCH BIAS LEVEL
PG410
IC401L
IC402L
PG405
L-CH Seite

AUDIO-LEITERPLATTE (BESTÜCKUNGSSEITE)

1. Wiedergabe-Pegel

Mit diesem Abgleich wird der Wiedergabe-Pegel eingestellt. Falls dieser Abgleich nicht richtig ausgeführt wird und der Pegel zu niedrig oder zu hoch ist, dann kommt es dadurch zu einem zu niedrigen bzw. zu hohen Wiedergabe-Pegel.

Anschluß der Prüfgeräte

1) Ein Röhrenvoltmeter an die Audio-Ausgangsbuchse für den rechten Kanal (R-CH) an der Geräteseite anschließen.
2) Ein Röhrenvoltmeter an die Audio-Ausgangsbuchse für den linken Kanal (L-CH) an der Geräteseite anschließen.

Status des Videorecorders

Das 1 kHz Audi-Signal vom Abgleichband wiedergeben.

Abgleichposition

RT401L (L-CH PLAYBACK LEVEL)
RT401R (R-CH PLAYBACK LEVEL)

Abgleichvorgang

1) RT401R (R-CH PLAYBACK LEVEL) so abgleichen, daß das Röhrenvoltmeter −5 dBm ± 1 dBm anzeigt.
2) RT401L (L-CH PLAYBACK LEVEL) so abgleichen, daß das Röhrenvoltmeter −5 dBm ± 1 dBm anzeigt.

2. Audio-Vormagnetisierungspegel

Mit diesem Abgleich wird die optimale Audio-Aufnahmevormagnetisierung eingestellt. Falls dieser Abgleich nicht richtig ausgeführt wird und der Pegel zu niedrig ist, dann werden die hohen Frequenzanteile angehoben und es kommt zu Verzerrungen, wogegen bei einem zu hohen Pegel der Frequengang beeinträchtigt und die Höhenwiedergabe verschlechtert werden.

Anschluß der Prüfgeräte

1) Ein Röhrenvoltmeter an den rechten Kanal des Audio/Steuerspurkopfes anschließen, wie es in Abb. 13 dargestellt ist.
2) Ein Röhrenvoltmeter an den linken Kanal des Audio/Steuerspurkopfes anshließen, wie es in Abb. 13 dargestellt ist.

Status des Videorecorders

Eine Leercassette einsetzen und den Videorecorder auf die SP-Aufnahmefunktion schalten.

Abgleichposition

RT402R (R-CH BIAS LEVEL)
RT402L (L-CH BIAS LEVEL)

Abgleichvorgang

1) RT402R (R-CH BIAS LEVEL) so abgleichen, daß das Röhrenvoltmeter 310 μA anzeigt.
2) RT402L (L-CH BIAS LEVEL) so abgleichen, daß das Röhrenvoltmeter 310 μA anzeigt.

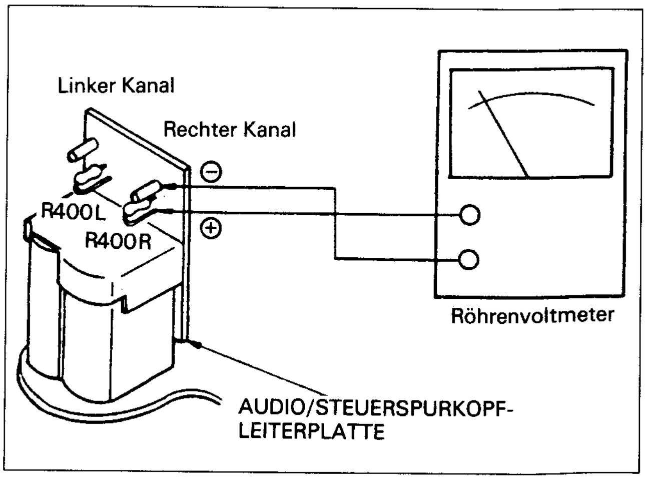
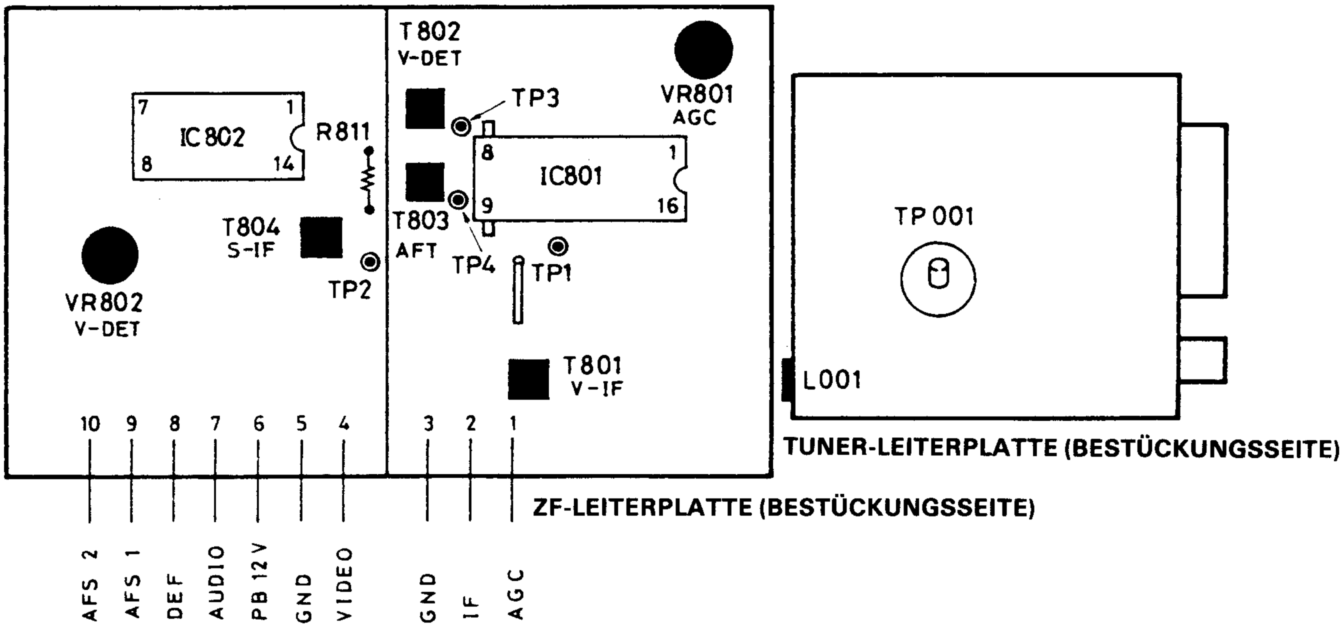

Linker Kanal
Rechter Kanal
⊖
⊕
R400L
R400R
Röhrenvoltmeter
AUDIO/STEUERSPURKOPF-LEITERPLATTE

Abb. 13 Audio/Steuerspurkopf

VT-TU7E (TUNER/TIMER)

ABGLEICH DES TUNER/ZF-SCHALTKREISES

Die obere Abdeckung und die Abschirmung des ZF-Abschnittes entfernen und danach den Abgleich an den Tuner/ZF-Schaltkreises ausführen.


T802
V-DET
TP3
VR801
AGC
7
1
IC802
8
14
R811
8
1
IC801
9
16
T804
S-IF
T803
AFT
TP4
TP1
TP2
VR802
V-DET
T801
V-IF
TP001
L001
10 9 8 7 6 5 4 3 2 1
TUNER-LEITERPLATTE (BESTÜCKUNGSSEITE)
ZF-LEITERPLATTE (BESTÜCKUNGSSEITE)
AFS 2
AFS 1
DEF
AUDIO
PB 12 V
GND
VIDEO
GND
IF
AGC

1. Video-Zwischenfrequenz (V-IF)

Anschluß der Prüfgeräte

1) Den Ausgang eines TV-IF Signalgenerators (Marker 31,9 MHz, 33,40 MHz, 34,47 MHz, 38,9 MHz und 40,4 MHz) an die ZF-Eingangsstifte (2) und (3) (GND) der ZF-Schaltkreis anschließen.
2) Einen Widerstand (50 Ohm) zwischen TP3 und TP4 schalten und ein Oszilloskop an TP3 anschließen.

Status des Videorecorders

E-zu-E Funktion

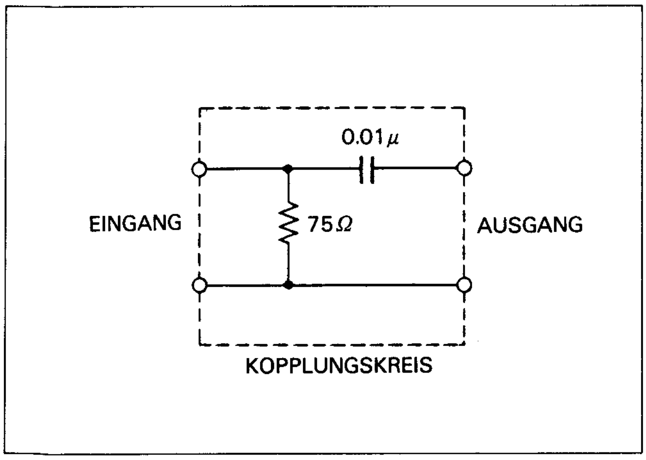

0.01µ
EINGANG
75Ω
AUSGANG
KOPPLUNGSKREIS

Abb. 14 Kopplungskreis

Abgleichposition

T801 (V-IF)

Abgleichvorgang

1) T801 so abgleichen, daß die in Abb. 15 dargestellte Kennlinie erhalten wird, wobei das oszilloskop auf maximale Empfindlichkeit und der Ausgang des TV-IF Signalgenerators auf den minimalen erforderlichen Pegel eingestellt werden müssen.
2) Den Widerstand (50 Ohm) (beschrieben in Punkt 2 unter "Anschluß der Prüfgeräte" wieder entfernen, nachdem der Abgleich beendet wurde.

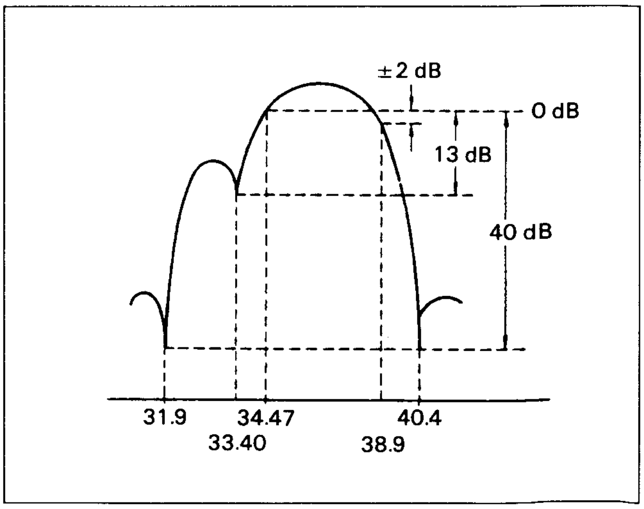


Abb. 15

2. Video-Detektor (V-DET)

Anschluß der Prüfgeräte

1) Den Ausgang des TV-IF Signalgenerators (Marker 38,9 MHz und 34, 47 MHz) an die ZF-Eingangsstifte (2) und (3) (GND) des ZF-Schaltkreises anschließen.
2) Den Ausgang (Gleichspannung 6 ~ 12V) der Gleichstromversorgung an den Testpunkt TP1 anschließen.
3) Das Oszilloskop an R811 (T804 Seite) des ZF-Schaltkreises anschließen.

Status des Videorecorders

E-zu-E Funktion

Abgleichposition

T802, VR802 (V-DET)

Abgleichvorgang

1) Den Ausgang des 38,9 MHz Oszillators so abgleichen, daß der Eingangspegel am ZF-Eingangsstift 90 dBμ beträgt.
2) Das Oszilloskop auf Gleichstrombetrieb einstellen und die Ausgangsspannung der Gleichstromversorgung so abgleichen, daß der Wert (V1) gleich −1,5V beträgt.
3) T802 so abgleichen, daß V1 ein Maximum annimmt. Wenn V1 auf −1,5V ±0,2V oder mehr eingestellt ist, die Ausgangsspannung der Gleichstromversorgung gemäß Einstellvorgang (1) nachjustieren.
4) T802 so einstellen, daß V1 ein Maximum annimmt; danach das Oszilloskop auf Wechselstrombetrieb schalten. Den Ausgang des TV-Signalgenerators so einstellen, daß die in Abb. 16 dargestellte Wellenform einen Pegel von 1,2 Vs-s aufweist.
5) Sicherstellen, daß die Ausgänge der 34,47 MHz und 38,9 MHz Abschnitte der Wellenform gleich sind (B=C). Die Video-Zwischenfrequenz (V-IF) (beschrieben in Abgleich 1) nochmals nachregulieren, wenn die Ausgänge eine Differenz aufweisen.
6) Das Oszilloskop an den Video-Ausgangsstift (4) des ZF-Schaltkreises anschließen. VR802 so abgleichen, daß die in Abb. 16 dargestellte Wellenform einen Pegel von 1,0 Vs-s annimmt.

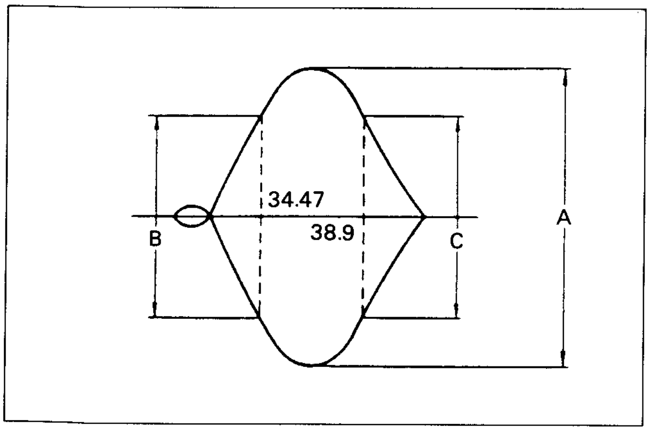


Abb. 16 Video-Detektor (V-DET)

3. Automatische Feinabstimmung (AFS)

Anschluß der Prüfgeräte

1) Den Ausgang des 38,9 MHz Oszillators an den ZF-Eingangsstift (2) und (3) (GND) des ZF-Schaltkreises über den in Abb. 17 dargestellten Kopplungskreis anschließen.
2) Ein Oszilloskop an die ZF-Ausgangsstifte (9) und (10) des ZF-Schaltkreises anschließen.

Status des Videorecorders

E-zu-E Funktion

Abgleichposition

T803 (AFS)

Abgleichvorgang

1) Den Ausgang des 38,9 MHz Oszillators so abgleichen, daß der Eingangspegel an den ZF-Eingangsstiften (2) und (3) 90 dBμ beträgt.
2) Das Oszilloskop auf Gleichstrombetrieb schalten und T803 so abgleichen, daß die Potentialdifferenz zwischen den ZF-Ausgangsstiften (9) und (10) gleich Null beträgt.

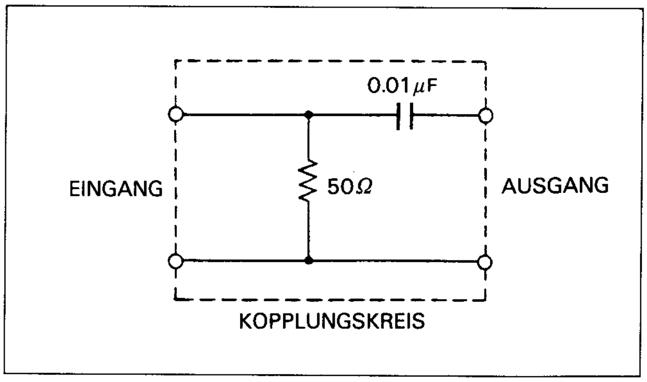


Abb. 17 AFS

4. Ton-Zwischenfrequenz (SIF)

Anschluß der Prüfgeräte

1) Den UHF- oder VHF-Antennenausgang an die Antenneneingänge des Videorecorders anschließen.
2) Farbfernsehgerät am Videorecorder anschließen.

Status des Videorecorders

E-zu-E Funktion

Abgleichposition

T804 (SIF)

Abgleichvorgang

1) Den AFS-Schalter auf "ON" stellen.
2) T804 so abgleichen, daß die Ton-Verzerrungen auf ein Minimum begrenzt sind und maximaler Lautstärkepegel sichergestellt wird.

5. Bild-Zwischenfrequenz (PIF)

Anschluß der Prüfgeräte

1) Den Ausgang des TV-Signalgenerators an die Anteneneingänge des Videorecorders anschließen und das Gerät abstimmen.
2) Ein Oszilloskop an den Video-Ausgangsstift 4 des ZF-Schaltkreises anschließen.

Status des Videorecorders

E-zu-E Funktion

Abgleichposition

L001 (PIF)

Abgleichvorgang

1) L001 so abgleichen, daß die in Abb. 18 dargestellte Kennlinie erhalten wird, wenn die Empfindlichkeit des Oszilloskops auf Maximum und der Ausgang des TV-Signalgenerators auf den minimalen erforderlichen Pegel eingestellt sind.

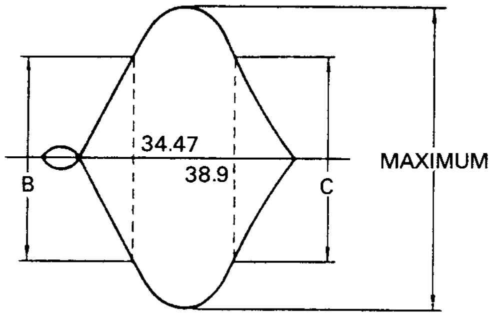


Abb. 18 PIF

6. Video-Ausgang

Anschluß der Prüfgeräte

1) Den Ausgang des TV-Signalgenerators an die Anteneneingänge des Videorecorders anschließen und das Gerät abstimmen.
2) Ein Oszilloskop an die Video-Ausgangsstifte (4) und (5) (GND) des ZF-Schaltkreises anschließen.

Status des Videorecorders

E-zu-E Funktion

Abgleichposition

VR802 (VIDEO OUTPUT LEVEL)

Abgleichvorgang

1) Den Ausgang des TV-Signalgenerators so abgleichen, daß die Ausgangsspannung am Testpunkt TP001 des Tuners gleich 80 dBμ beträgt.
2) Das Modulationssignal des TV-Signalgenerators auf das Farbbalkensignal (COLOUR BAR) mit einer Modulation von 87,5% einstellen.
3) VR802 so abgleichen, daß die Ausgangswellenform des Oszilloskops 0,95V ±0,03V beträgt.

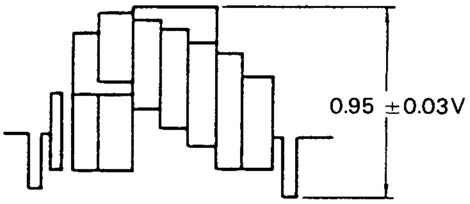


Abb. 19 Video-Ausgangspegel

7. Automatische Gewinnregelung (AGC)

Anschluß der Prüfgeräte

1) Den Ausgang des Signalgenerators über einen Kopplungskreis an die VHF-Antennenklemmen anschließen.
2) Ein Röhrenvoltmeter zwischen den Stiften (9) und (10) des IC801 im ZF-Schaltkreis anschließen.

Status des Videorecorders

E-zu-E Funktion

Abgleichposition

VR801 (AGC)

Abgleichvorgang

1) Das Ausgangssignal des Signalgenerators auf 203,25 MHz, 69 dBμ (75 Ohm, nicht abgeschlossen), einstellen.
2) Den VR-Abstimmregler des Videorecorders so abgleichen, daß das Röhrenvoltmeter 0V anzeigt (Potentialdifferenz zwischen den Stiften (9) und (10) des ZF-Schaltkreises).
3) Ein Röhrenvoltmeter an den AGC-Ausgangsstift 1 im ZF-Schaltkreis anschließen. VR401A so abgleichen, daß zu diesem Zeitpunkt ein Wert von 6,0 ±0,5V erhalten wird.

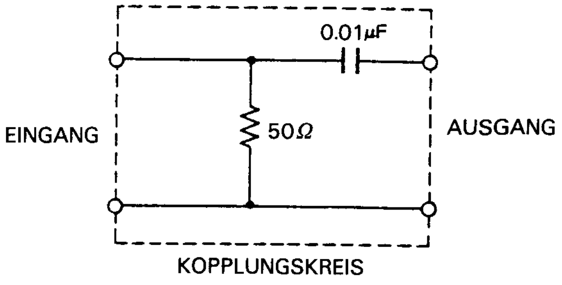
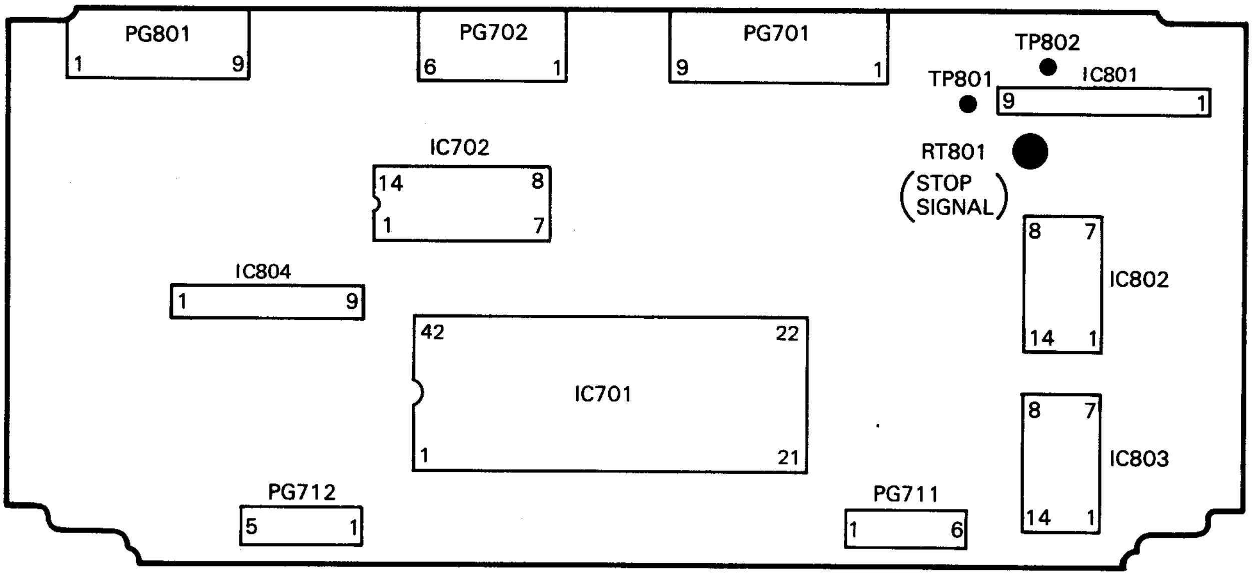


Abb. 20 AGC

V·S ABGLEICH DES BILD/TON-ABSTIMMSCHALTKREISES (Bild/Ton-Abstimmleiterplatte)

Position der Abgleichteile


PG801
1
9
PG702
6
1
PG701
9
1
TP802
TP801
IC801
9
1
IC702
14
8
1
7
RT801
STOP SIGNAL
8
7
IC802
14
1
IC804
1
9
42
22
IC701
1
21
8
7
IC803
14
1
PG712
5
1
PG711
1
6

V·S Bild/Ton-Abstimmleiterplatte (Bestückungsseite)

1. Stoppsignal-Abgleich

Diesen Abgleich durchführen, damit das horizontale Synchronsignal von 15,625 kHz genau erzeugt werden kann.

Anschluß der Prüfgeräte

Einen Frequenzzähler an den Testpunkt TP802 anschließen.

Abgleichposition

RT801 (STOP SIGNAL)

Abgleichvorgang

RT801 so abgleichen, daß der Frequenzzähler 15,625 kHz ± 50 kHz anzeigt.

MECHANISCHE EINSTELLUNGEN

1. Einstellung des Bandlaufwerk-Statusschalters

Dieser Schalter ist in der Nähe des Einfädelzahnrades an der Unterseite des Chassis angeordnet und stellt den Ladezustand des Bandlaufwerkes fest, um den Fädelmotor zu steuern.
Wenn dieser Schalter nicht richtig eingebaut ist, dann wird der Einfädelvorgang fehlerhaft ausgeführt und das Bandlaufwerk kann nicht normal funktionieren.

1) Die Schneckenrad-Riemenscheibe von Hand gegen den Uhrzeigersinn drehen, kurz bevor der Widerstand steil ansteigt. Die Oberkante der rhombisch geformten Nut im Antriebnszahnrad sollte nun innerhalb von 1,3 mm vom Ende A gesehen werden können. (Diese Stellung entspricht der Stoppfunktion.)
2) Den Bandlaufwerk-Statusschalter verschieben, nachdem seine Befestigungsschraube gelöst wurde.
3) Danach die Schraube in der Position festziehen, in der die die Stoppfunktion anzeigende V-Nut und das dreieckige Loch im Schalterknopf übereinstimmen. (Fehler: +0,15 mm in Einfädelrichtung und +0,25 mm in Ausfädelrichtung. Diese Einstellung vornehmen, indem gerade von oben darauf geblickt wird.)

Betriebskontrolle

Nach dem Einbau und der Einstellung ist die Betriebsfunktion zu kontrollieren.

1) Die Schneckenrad-Riemenscheibe im Uhrzeigersinn drehen und darauf achten, daß das dreieckige Loch aus der Position der Stoppfunktion mit der fünften V-Nut übereinstimmt, wenn die Schneckenrad-Riemenscheibe ganz gedreht wird: die V-Nut der Stoppfunktion und das dreieckige Loch müssen übereinstimmen, wenn die Schneckenrad-Riemenscheibe ganz gedreht wird.
2) Eine Leercassette einsetzen und alle Funktionen ausprobieren, um sicherzustellen, daß das Ein-/Ausfädeln richtig durchgefürt wird.
   Falls die obigen Bedingungen nicht erfüllt werden und die genannten Funktionen nicht gewährleistet sind, den Schalter nachjustieren.

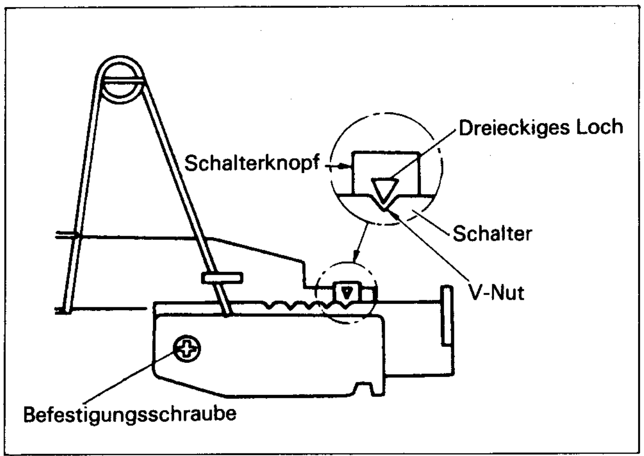


Abb. 21 Bandlaufwerk-Statusschalter

2. Kontrolle/Einstellung des Bandlaufwerkes

Das Bandlaufwerk transportiert das Band von der Vorratsspule an den Videoköpfen vorbei zur Wickelspule. Das Bandlaufwerk – und besonders die mit dem Magnetband in Berührung kommenden Teile – müssen immer rein gehalten werden, wobei sichergestellt werden muß, daß die Kontaktflächen frei von Kratzern, Öl, Staub usw. sind. Das Bandlaufwerk wurde werksseitig vor dem Versand eingestellt. Wenn daher Teile des Bandlaufwerkes erneuert werden, unbedingt die neuen Teile einstellen, damit stabile Betriebsbedingungen gewährleistet werden können.
Die Befestigungsschrauben der nachfolgend gezeigten Teile nicht lösen. Wenn diese Teile erneuert werden müssen, diese unbedingt in der ursprünglichen Position einbauen.

1) Vorrats-/Wickelteller-Arretierungen
2) Geneigte Vorrats-/Wickeltellerführung

1. Wickeltellerhöhe

1) Die obere Abdeckung und den Cassettenschachtdekkel ausbauen, die Hauptmeßlehre am Cassettenhalter anbringen und den Cassettenhalter absenken.
2) Eine rechtwinkelige Meßlehre auf der Hauptmeßlehre anbringen und an den Wickelteller anlegen.
3) Darauf achten, daß die Oberkante des Wickeltellers zwischen den Abschnitten A und B der rechtwinkeligen Meßlehre positioniert ist.
4) Falls sich die Oberkante des Wickeltellers nicht zwischen den Abschnitten A und B befindet, die Anzahl der Beilegescheiben an der Unterseite des Wickeltellers einstellen (Stärke: 0,5 mm).

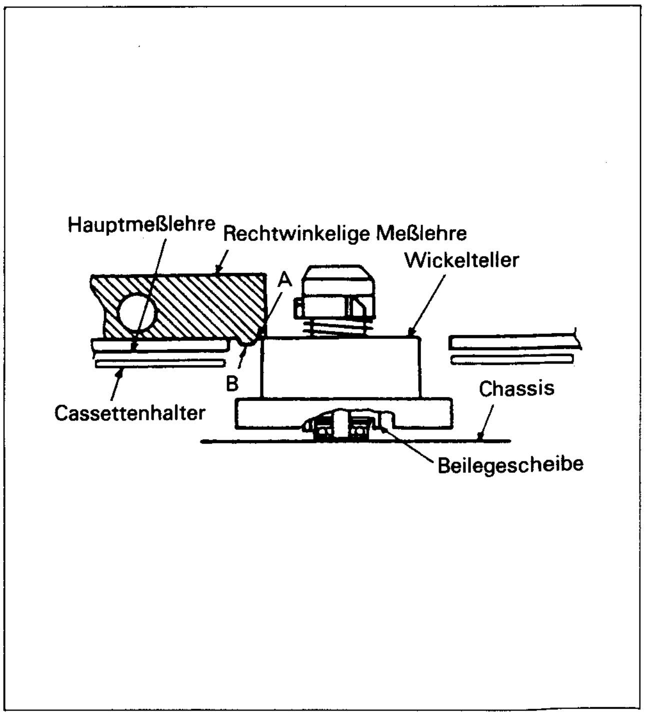


Abb. 22 Wickelteller

2. Spannstift-Position/Spannung

Die Position und die Spannung des Spannstiftes einstellen und danach die eingestellten Werte kontrollieren.

Vor dieser Einstellung müssen die obere Abdeckung und der Cassettenschachtdeckel entfernt werden.

Positionseinstellung

1) Den lichtempfindlichen Vorratsteller-Endsensor mit einem Stück Papier odgl. abdecken.
2) Ohne eine Cassette einzusetzen, die Wiedergabetaste drücken, um den Videorecorder auf die Ladefunktion zu schalten.
3) Die Befestigungsschraube der Spannbandkonsole lösen und einen normalen Schlitzschraubendreher in die Nut zwischen der Konsole und dem Chassis einschieben.
4) Die Spannbandkonsole mit dem Schraubendreher verschieben, und den Abstand zwischen dem Spannstift und dem Chassis auf 1 ~ 2 mm einstellen.
5) Die Konsolen-Befestigungsschraube wieder festziehen.
6) Den Ladevorgang ausführen (ohne eine Cassette einzusetzen), um nach der Einstellung nochmals die Position des Spannstiftes zu kontrollieren.

Spannungs-Einstellung

1) Die Befestigungsschraube des Federhalters lösen.
2) Die Spannungseinstell-Cassette einsetzen und im SP-Betrieb wiedergeben.
3) Einen normalen Schlitzschraubendreher verwenden und damit den Federhalter verschieben.
4) Die Spannung so einstellen, daß der Spannungsmesser ein Spannmoment von 30 ~ 45 g.cm anzeigt.
5) Den Videorecorder auf die Stoppfunktion schalten und die Schraube festziehen.
6) Nochmals die Position des Spannstiftes kontrollieren, wenn die Spannung stark verändert wurde (um 5 g.cm oder mehr). Wenn die Position verschoben wurde, Position und Spannung des Spannstiftes nochmals einstellen.

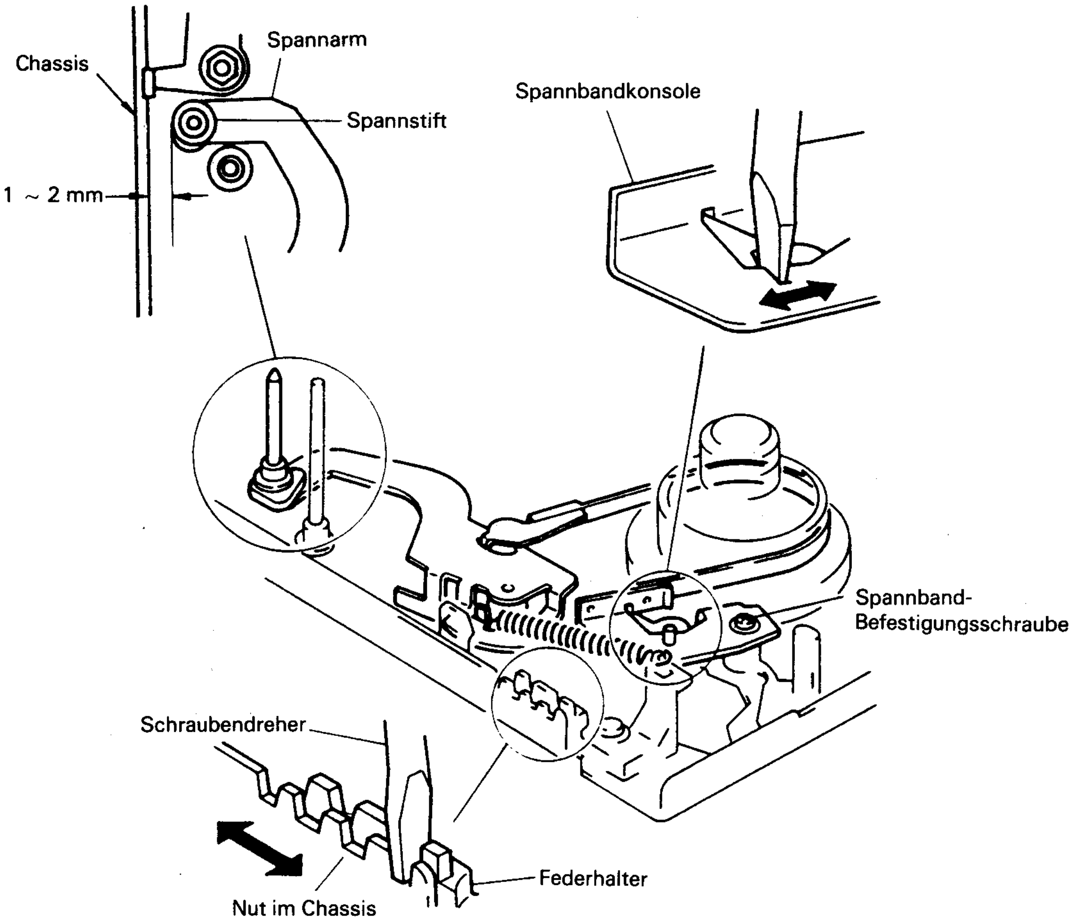


Abb. 23 Spannstift/Spannband

3. Führungsstifthöhe

1) Die obere Abdeckung und den Cassettenschachtdeckel entfernen, die Hauptmeßlehre am Cassettenhalter anbringen und an den Führungsstift anlegen.
2) Die rechtwinkelige Meßlehre an der Hauptmeßlehre anbringen und an den Führungsstift anlegen.
3) Die Führungsstift-Höheneinstellmutter drehen, um den Abstand zwischen dem oberen Flansch des Führungsstiftes und der Oberkante der Meßlehre auf 0 ~ 0,2 mm einzustellen.
4) Eine Leercassette einsetzen und das Bandlaufwerk einschalten, um sicherzustellen, daß das Band nicht an den oberen/unteren Flanschen übersteht.
5) Wenn das Band an den Flanschen übersteht bzw. auf diesen läuft, ist die Führungsstifthöhe einzustellen. Dabei die Mutter im oder gegen den Uhrzeigersinn drehen, abhängig davon, ob das Band am unteren oder oberen Flansch übersteht, um den Führungsstift anzuheben oder abzusenken.

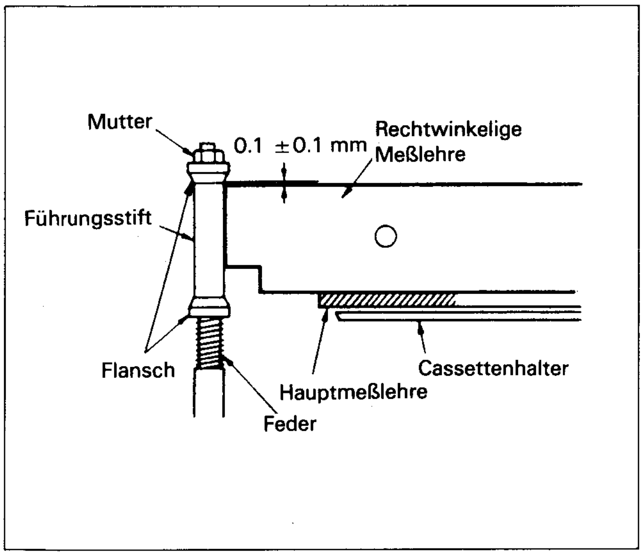


Abb. 24 Führungsstift

4. Führungsrollenhöhe

1) Die obere Abdeckung und den Cassettenschachtdeckel ausbauen, die Hauptmeßlehre am Cassettenhalter anbringen und den Cassettenhalter absenken. Die rechtwinkelige Meßlehre an der Hauptmeßlehre anbringen und an die Führungsrolle anlegen.
2) Die Führungsrollen-Befestigungsschraube an der Position festziehen, an der der obere Flansch der Führungsrolle mit der Oberkante der Meßlehre übereinstimmen.
3) Das Bandlaufwerk einschalten, um sicherzustellen, daß das Band keine Falten bildet und auch nicht ansteigt. Danach die elektrischen Abgleiche durchführen.
4) Ein Oszilloskop an den Testpunkt TP201 (FM-Ausgang) der Y/Chroma-Leiterplatte anschließen.
5) Das Farbbalkensignal-Prüfband wiedergeben und den Spurlagenregler in seine Raststellung bringen.
6) Darauf achten, daß die FM-Wellenform linear verläuft.
7) Danach sicherstellen, daß der FM-Abfall an der Anstiegsflanke und Anfallflanke gleich ist, wenn der Spurlagenregler nach rechts und links gedreht wird.
8) Ist dies nicht der Fall, die Führungsrollen-Befestigungsschraube lösen, die Führungsrolle etwas nach links oder rechts drehen und auf eine lineare Wellenform achten.
9) Die Befestigungsschraube wieder festziehen.

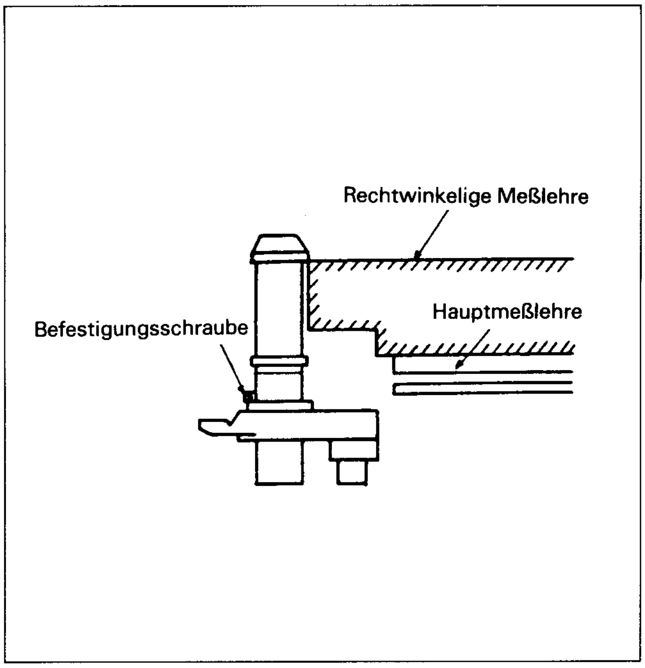
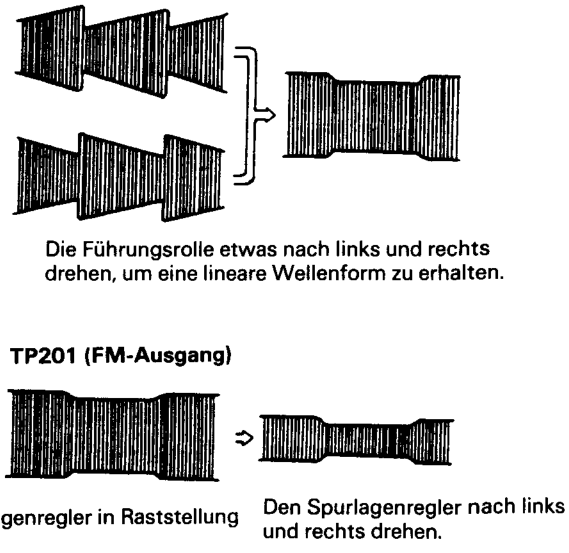


Abb. 25 Führungsrolle



Die Führungsrolle etwas nach links und rechts drehen, um eine lineare Wellenform zu erhalten.

TP201 (FM-Ausgang)

Spurlagenregler in Raststellung

Den Spurlagenregler nach links und rechts drehen.

Abb. 26 FM-Ausgang

5. Ton/Steuerspurkopf

Mit der Einstellung des Ton/Steuerspurkopfes werden Höhe, Neigungs- und Azimutwinkel richtig einjustiert, bevor der X-Wert eingestellt wird. Daher zuerst die drei zuerstgenannten Werte einstellen, um die optimale Einbauposition für den Ton/Steuerspurkopf zu bestimmen. Erst danach den X-Wert einstellen. Nachfolgend sind die Einstellvorgänge für den Fall gezeigt, daß der Ton/Steuerspurkopf erneuert werden muß. Unbedingt eine Grobeinstellung vornehmen, bevor die Feineinstellung ausgeführt wird.

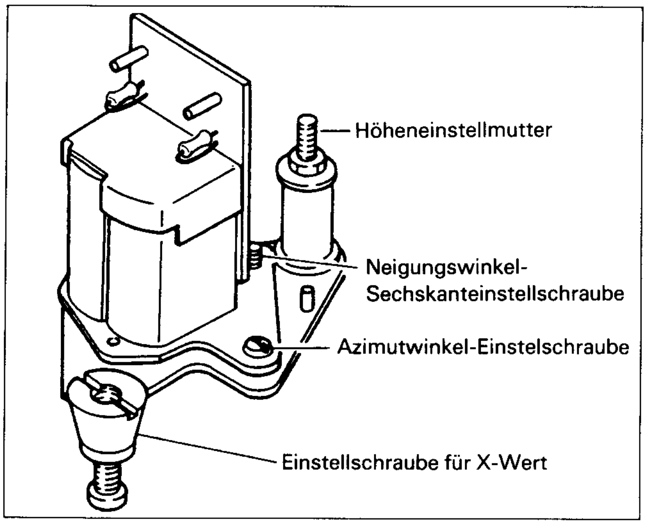

Höheneinstellmutter
Neigungswinkel-Sechskanteinstellschraube
Azimutwinkel-Einstelschraube
Einstellschraube für X-Wert

Abb. 27 Ton/Steuerspurkopf

Grobeinstellung

1) Die Ton/Steuerspurkopf-Befestigungsschraube von der Unterseite der Kopfträger-Grundplatte (2) über eine Feder festziehen, so daß die Oberkante der Befestigungsschraube etwa 3 ~ 4 mm über der Oberkante der Kopfträger-Grundplatte (1) liegt (siehe Abb. 28).
2) Die Neigungswinkel-Sechskanteinstellschraube und die Azimutwinkel-Einstellschraube so einstellen, daß die Kopfträger-Grundplatte (1) parallel zur Kopfträger-Grundplatte (2) angeordnet ist (siehe Abb. 28).
3) Die Hauptmeßlehre am Cassettenhalter anbringen und den Cassettenhalter absenken.
4) Nun die Höheneinstellmutter so einstellen, daß der Abstand zwischen der rechtwinkeligen Meßlehre und dem Abschirmgehäuse des Ton/Steuerspurkopfes etwa 0,5 mm beträgt, wenn die rechtwinkelige Meßlehre an der Hauptmeßlehre angebracht wurde und an den Ton/Steuerspurkopf angelegt wird (siehe Abb. 29).
5) Die Einstellehren entfernen, eine Leercassette einsetzen und den Videorecorder auf die Wiedergabefunktion schalten. Darauf achten, daß nun in der Nähe des Ton/Steuerspurkopfes das Band keine Falten bildet und auch nicht ansteigt. Falls dies jedoch passiert, die Neigungswinkel-Sechskanteinstellmutter, die Azimutwinkel-Einstellschraube und die Höheneinstellmutter nochmals nachjustieren. In optimaler Höhe des Ton/Steuerspurkopfes weist die Unterkante des Bandes einen Abstand von etwa 0,3 mm von der Unterkante des Steuerkopfkernes auf (siehe Abb. 30).

Feineinstellung

6) Die Audio-Ausgangsbuchse für den linken Kanal mit der CH-1 Klemme des Oszilloskops und die Audio-Ausgangsbuchse für den rechten Kanal mit der CH-2 Klemme des Oszilloskops verbinden.
7) Den Wiedergabepegelregler RT401L/R (beschrieben unter Abgleich des Audio-Schaltkreises) auf maximalen Ausgangspegel einstellen.
8) Das 7 kHz Tonsignal vom Abgleichband wiedergeben. Die Einstellschrauben für den Neigungswinkel, den Azimutwinkel und die Höhe des Ton/Steuerspurkopfes abwechselnd drehen, bis der Audio-Ausgang von beiden Kanälen gemäß Abb. 31 ein Maximum aufweist und die Hüllkurven am Ende linear verlaufen. Wenn die Audio-Ausgangspegel der beiden Kanäle eine Differenz aufweisen, den Pegel auf ihren Durchschnittswert einstellen.
9) Darauf achten, daß die Phasen der beiden Kanäle übereinstimmen.
10) Die Einstellung des Wiedergabepegels vornehmen, wie sie unter Abgleich des Audio-Schaltkreises beschrieben ist.

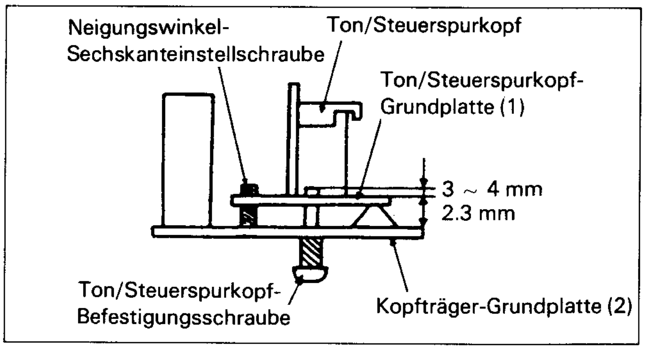

Neigungswinkel-Sechskanteinstellschraube
Ton/Steuerspurkopf
Ton/Steuerspurkopf-Grundplatte (1)
3 ~ 4 mm
2.3 mm
Ton/Steuerspurkopf-Befestigungsschraube
Kopfträger-Grundplatte (2)

Fig. 28 Azimut-/Neigungswinkel-Einstellung

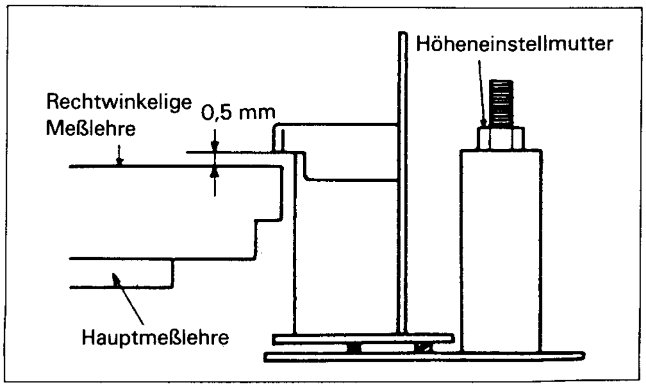

Höheneinstellmutter
Rechtwinkelige Meßlehre
0,5 mm
Hauptmeßlehre

Fig. 29 Höheneinstellung

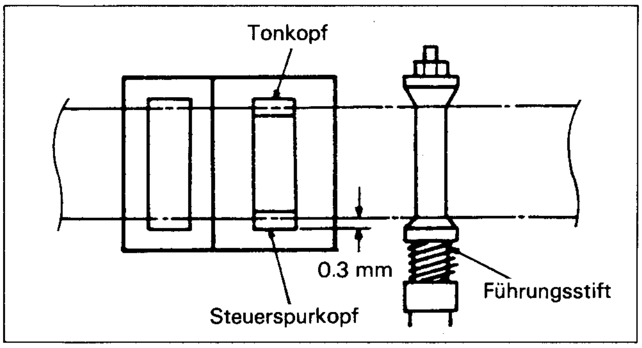


Fig. 30 Höheneinstellung

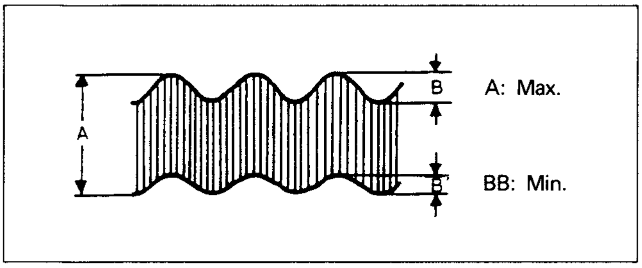


Fig. 31 Audio-Ausgangspegel

X-Wert-Einstellung

11) Ein Oszilloskop an den FM-Ausgangsstift (TR201) der Y/Chroma-Leiterplatte anschließen.
12) Den Spurlagenregler in seine Raststellung bringen und die X-Wert-Einstellschraube so einstellen, daß der Spitzenwert der FM-Hüllkurve ein Maximum annimmt. In Abb. 32 ist die Kennlinie für den Spitzenwert der FM-Hüllkurve in Hinsicht auf die Einstellung des Spurlagenreglers gezeigt, wenn der X-Wert mittels Abgleichband auf den optimalen Pegel eingestellt wurde.
13) Den Punkt 10 nochmals kontrollieren.
14) Sicherungslack auf der Neigungswinkel-Einstellschraube, der Azimutwinkel-Einstellschraube, der Ton/Steuerspurkopf-Höheneinstellmutter und der X-Wert-Einstellschraube auftragen.
15) Den Wiedergabeausgang und den Aufname-Vormagnetisierungspegel gemäß "Abgleich der Schaltkreise" einstellen.

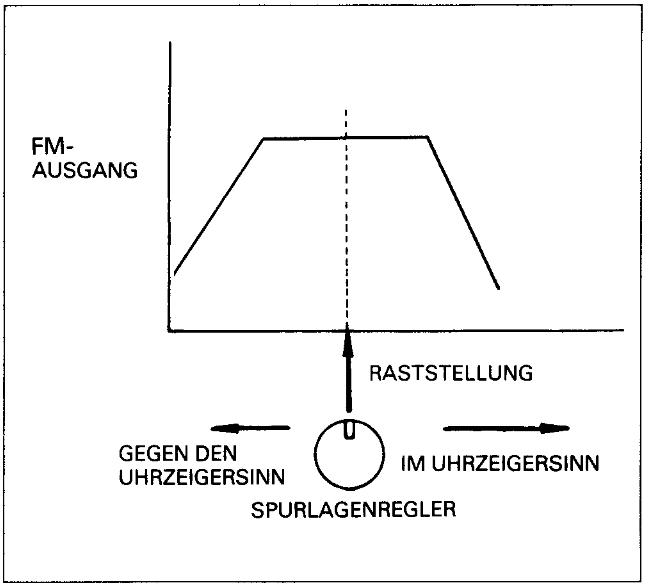


Abb. 32 X-Wert

6. Einstellung nach Austausch der Bildkopftrommel (Bildköpfe)

Wenn die Bildkopftrommel ausgetauscht wird, dann werden die relativen Höhen der Führungsrollen, der X-Wert usw. verstellt, so daß sowohl das Bandlaufwerk als auch das Servo-System eingestellt werden müssen. Wenn jedoch die Bildkopftrommel richtig ausgetauscht wurde, dann werden die relative Höhe und der X-Wert nur sehr gering verstellt, so daß eine Korektur durch den elektrischen Abgleich möglich ist.

1) Darauf achten, daß das Band in der Nähe der Führungsrolle keine Falten bildet.
   Die Höhe der Führungsrolle nachjustieren, wenn Faltenbildung festgestellt wird.
2) Den X-Wert einstellen. (Siehe unter "Ton/Steuerspurkopf".)
3) Die Linearität und die Pegelschwankungen des FM-Ausganges kontrollieren. Das Kontrollverfahren wird später beschrieben.
4) Den Servo-Schaltkreis und den Luminanz/Chroma-Schaltkreis einstellen.
   - **Kopfwechselpunkt (Servo-Leiterplatte)**
   - **Spurlagen-Voreinstellung (Servo-Leiterplatte)**
   - **Aufnahme-Luminanz/Chroma-Pegel**

3. Andruckkraft und Drehmomente

Eine Überprüfung der Andruckkraft und der Drehmomente im Wickeltellerbereich und im Bandlaufwerk ist äußerst wichtig, um problemlosen Bandtransport und gutes Leistungsvermögen des Videorecorders sicherzustellen.

Bei unregelmäßigem Bandlauf bzw. bei Schwankungen der Bandgeschwindigkeit kann anhand dieser Kontrolle der fehlerhafte Abschnitt aufgefunden werden, worauf die Korrektur einfach durchgeführt werden kann.

Benennung	Bandlauffunktion des Videorecorders	Teller	Meßwert	Bemerkungen
Andruckkraft der Andruckrolle	WIEDERGABE PAUSE	———	1,2 ± 0,2 kg	Hinweis 1
Hauptbremsmoment	Stopp	Vorrats- & Wickelteller	170 g-cm oder mehr	Hinweis 2
Spannmoment	Ausfädeln	Vorratsteller	200 ~ 300 g.cm	Hinweis 2
Schnellvor- & Rücklaufmoment	Schnellvor- & Rücklauf	Vorrats- & Wickelteller	400 g.cm oder mehr	Hinweis 2
Wiedergabe-Spannmoment	Wiedergabe	Vorratsteller	26 ~ 32 g.cm	
Aufspulmoment	Wiedergabe (2 Stunden)	Wickelteller	100 ~ 150 g.cm	Hinweis 2
Vorrats- & Wickelteller-Spannmoment	Schnellvorlauf	Vorratsteller	4 ~ 15 g.cm	Hinweis 3
	Rücklauf	Wickelteller		

Hinweis 1

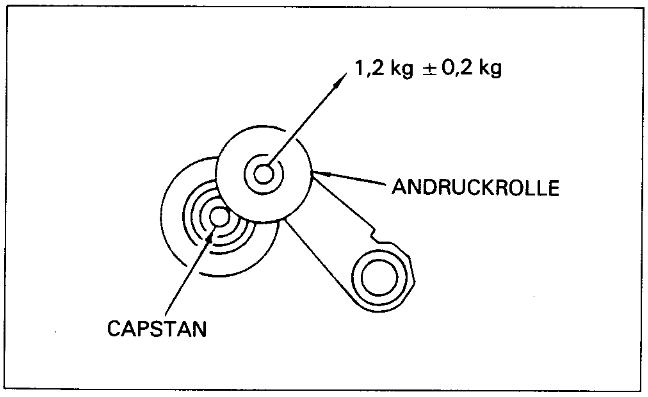


Abb. 3 Andruckrollen-Andruckkraft

Hinweis 2: Diese Werte sind zu messen, indem die Drehmoment-Meßlehre mit 0,8 U/sek. gedreht wird, wobei die Drehmoment-Meßlehre in Verbindung mit dem Adapter zu verwenden ist. Das Hauptbremsmoment ist jedoch zu messen, indem der Wickelteller im und der Vorratsteller gegen den Uhrzeigersinn mit einer Geschwindigkeit von 0,8 U/min. gedreht werden.

Hinweis 3: Dieser Wert ist zu messen, indem der Wickelteller gegen und der Vorratsteller im bzw. der Wickelteller im und der Vorratsteller gegen den Uhrzeigersinn gedreht werden, und zwar mit einer Geschwindigkeit von 50 mm/sek., wobei eine Blindspule und ein Drehmoment-Spannungsmesser zu verwenden sind.

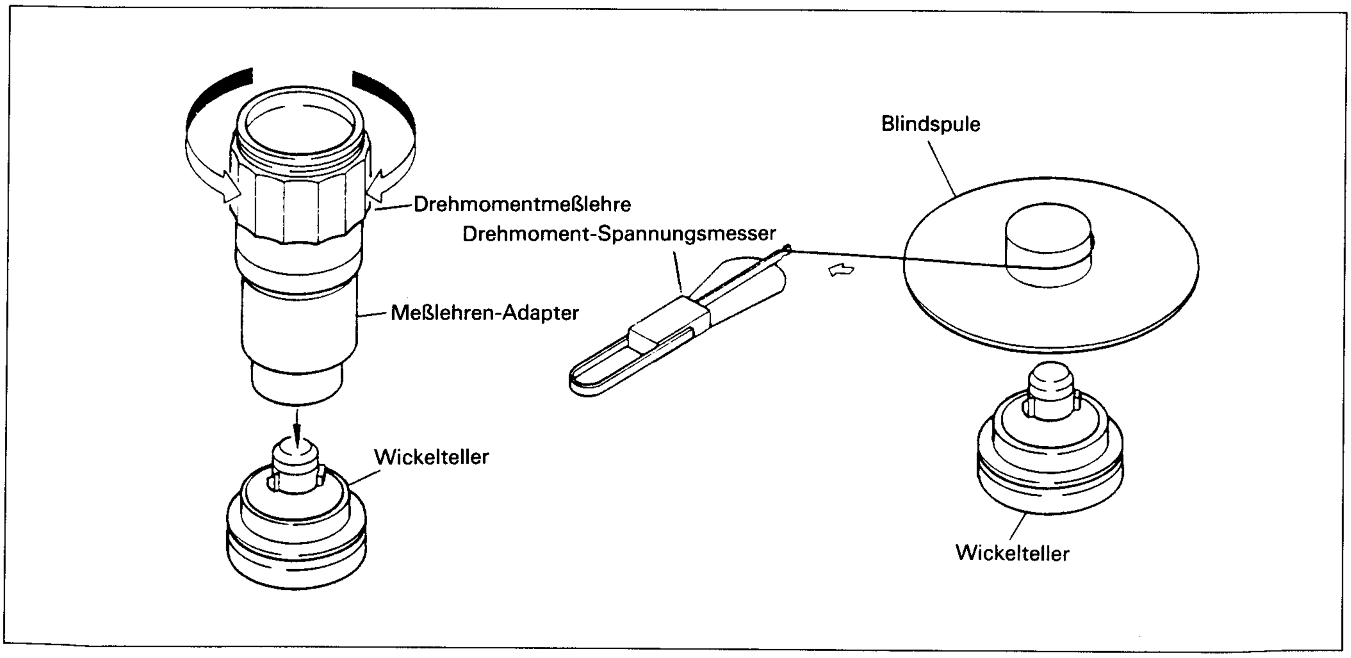


Abb. 34 Spannungs/Drehmoment-Messung

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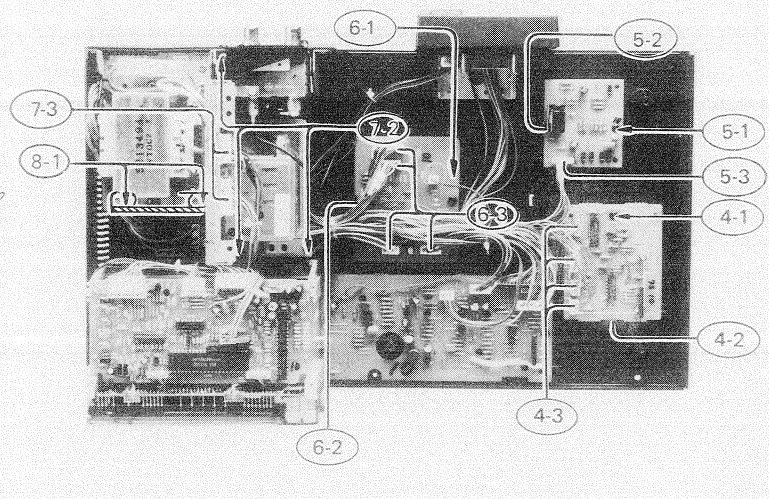
6-1
5-2
7-3
7-2
5-1
8-1
5-3
6-3
4-1
4-2
4-3
6-2

Fig. 44 T_1 PC Board, T_2 PC Board, S_1 PC Board
Wiring PC Board, Tuner/IF Block

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* This circuit board diagram is described for the units of the serial No. 00007051 and later modified.

No. 00007051